

Numbers & Oddities; the early days: February 1995-June 1997.

Additional related info was taken from my 'Digital Review' column that also appeared in the WUN newsletter.

'Numbers & Oddities' was one of the columns that appeared in the first 9 WUN newsletters. The column was later renamed in 'Utility Round-up' when it merged with two other columns. The column resurfaced in April 1998.

Especially interesting are the articles about the various Russian links with western intelligence networks, the Russian intelligence/diplomatic network and the articles about USAF's EAM's and Skyking messages.

These early N&O's are renumbered as N&O #079-088.

N&O #079: originally published as #01 in February 1995
N&O #080: originally published as #02 in March 1995
N&O #081: Special edition of N&O (issue #03) and the Digital Review column. Originally published in March 1995
N&O #082: originally published as #04 in April 1995
N&O #083: originally published as #05 in May 1995
N&O #084: originally published as #06 in June 1995
N&O #085: originally published as #07 in July 1995
N&O #086: originally published as #08 in August 1995
N&O #087: originally published as #09 in September 1995
N&O #088: originally published as #10 in June 1997
(Numbers special in the Digital Review)

-o-o-o-o-o-o-o-o-o-o-

The 'Numbers & Oddities' column a.k.a. 'Spooks Newsletter' comes to you courtesy of the Worldwide Utility News club (WUN). This newsletter may NOT be utilized, partly or wholly, in any other media format without the written permission of the editor (ary@luna.nl). Any breach of this may result in action under international copyright legislation.

To become a WUN member, send e-mail to the WUN listserver at: majordomo@qth.net and in the BODY of the message type: "subscribe wun" (without the quotation marks).

Check out the WUN web site at: <http://www.wunclub.com>

-o-o-o-o-conet-o-o-o-o-

Feb 1995

(=- NUMBERS & ODDITIES -=)

editor: Ary Boender

ary@bitbike.iaf.nl

2:283/512.24

In this column I'd like to deal with the more obscure part of our hobby. Numbers stations, strange sounds, beeps, pips and items about intelligence organizations is what have in mind for the 'Numbers & Oddities' (N&O) column. It is both a difficult and a fascinating part of the hobby. There is little known of the stations I just mentioned and the main part of the information here comes from a bunch of dedicated N&O monitors. It is the result of many, many hours of listening, comparing and discussing the loggings with fellow dxers.

Useful information can be found in Popular Communications, Monitoring Times, the Enigma Newsletter and of course DX-Club bulletins. The following books are also highly recommended: Underground Frequency Guide (Don Schimmel), Secret Signals (Simon Mason), Uno, Dos, Cuatro (Havana Moon) and Intercepting Numbers Stations (Langley Pierce).

The most heard numbers stations are operated by the CIA, Mossad, KGB, MI6 and BND.

In many countries it is prohibited to listen to utility stations, particularly to government or military stations. Therefore I will omit the names of the people who send me their info, unless you want to be mentioned.

Lincolnshire Poacher

=====

Believed to be operated by MI6 from sites including RAF Akrotiri in Cyprus and aimed towards the Near East. Transmissions are often heavily jammed.

Frequencies (kHz)

=====

Primary	Secondary	Tertiary	
6959	8302	7887	2000UTC - 0000UTC
6959	8464	9251	2000UTC - 0000UTC
11545	12603	13375	1600UTC - 2000UTC
13375	11545	14487	1200UTC - 1400UTC
14487	15682	16084	1400UTC - 1600UTC

MOSSAD "Phonetic Alphabet" Stations

=====

Transmissions are in AM but with best results obtained in USB.

Frequency Callsign

(kHz)

-----+-----

2270

JSR

2957	SYN
3150	PCD, ART
3270	KPA
3417	ART
3840	YHF
4270	PCD
4360	CIO
4463	FTJ
4560	YHF
4665	VLB
4780	KPA, ULX
4880	ULX
5091	JSR
5230	MIW, SYN, VLB, CIO
5339	OEM (occasional)
5437	ART
5531	BAY (occasional)
5629	SYN, CIO
5715	ZWL (occasional)
5820	YHF
5911	OEM (occasional)
6270	ULX
6500	PCD
6745	CIO, VLB
6840	JSR, EZI
6912	OEM (occasional)
7323	???
7446	KPA
7540	JSR
7605	VLB, SYN, CIO
7613	GPO (occasional)
7760	ULX
7918	YHF
8127	CIO, MIW
8465	SYN, CIO
8641	MIW
9130	EZI
9402	YHF
10125	CIO
10648	YHF
10820	VLB
11565	EZI
12747	SYN
12950	MIW
13533	EZI
13921	CIO
14750	CIO, MIW
17410	EZI

19715 EZI
20740 SYN

Oddities: lots of strange noises, pips and beeps can be heard throughout the shortwave spectrum. Many of them are simply hets, natural noises or originate from navigational systems like Omega, Loran and Decca. Other transmissions however, are more difficult to pin-point. Why would someone transmit the time in CW without any form of identification, or what about the stations who transmit the pips and beeps ?

On 4625 kHz a buzzer can be heard 24 hours a day. This one started in the early eighties as a 2-second pip and changed a couple of years ago into the buzzer. The station is located in Byelorussia according to a DF-expert. No-one knows its purpose.

On 4081,3 kHz there is a beep with a duration of 2 seconds which is transmitted every 4 seconds. No id has ever been heard. Another one can be found on 3757,1 kHz. A pip is transmitted every second. No id so far.

Also on 4625 kHz is a strange kinda timesignal station. It is best heard in the late evenings here in Europe and transmits the time (UTC+3 hours) in CW. No id heard. The time UTC+3 is Moscow time. It is unknown if the station transmits from the former USSR. The Middle East is also a possible location.

End of message Ende Ende Final Final

'till next time. Please, send me your comments, suggestions and loggings.

CU, Ary

=====
March 1995
Additional info: April 1998
=====

(=- NUMBERS & ODDITIES -=)
editor: Ary Boender
ary@bitbike.iaf.nl
2:283/512.24

Beacons ? NO WAY !

A couple of years ago the 'slhfb' or 'Single Letter High Frequency Beacons' could be heard on numerous frequencies throughout the SW spectrum. After the disintegration of the Soviet Union, many of them disappeared and only

a few survived. Some of them are very active, especially station 'P'. For many years the stations have been listed by the 'experts' as 'beacons'. I however, am absolutely convinced that these beacons are in fact channel-markers for Russian naval stations. In the past dxers have noted Soviet naval callsigns on the 'beacon' freqs.

The first time I had a close encounter with the 'real' station was in December 1990, when I noticed the first RTTY broadcasts on 3807 // 4043 kHz. It started with the 'P' marker, followed by 75bd RTTY, then back to the marker and into 50bd RTTY and back to the marker again. I monitored the frequency for another hour or so and after ca half an hour 'P' stopped and 75bd RTTY began again. The messages were all 5L groups sent in normal Baudot. No other callsign was used, just the letter 'P'. Then on 22-1-1995, I finally had a positive id of channelmarker 'P'. On 3262 kHz at exactly 21.00 UTC channelmarker 'P' started it's transmission: 3 groups of 5 P's followed by 'RMP' (= Navy Kaliningrad), then into the weather forecast for the Baltic area in plain text. All in CW. Then all went silent.

Apart from station P, also L, S, R, C and V are frequently heard. The home of the markers are ports where also Russian naval bases are located. L is located in St Petersburg, S is in Arkhangelsk, C in Moscow, R and V are yet unknown. The now defunct markers 'U' and 'K' were respectively in Odessa and in Petropavlovsk.

The odd thing is that I never heard any RTTY on other 'beacon' frequencies, while C, R, S and V are there for many years. I also don't know anyone else who did hear anything but the markers. So keep you ears open and let me know what you hear.

Frequencies:

Channelmarker 'C': 3564, 4302, 5306, 7039, 8459, 10612, 13636, 17016 kHz

Channelmarker 'L': 3090, 26170 kHz

Channelmarker 'P': 3167, 3208, 3262, 3264, 3290, 3807, 4043 kHz

Channelmarker 'R': 3195, 4326, 7452, 25250 kHz

Channelmarker 'S': 4301, 8485, 10872, 17015.7 kHz

Channelmarker 'V': 3658, 4446, 4576 kHz

As said 'P' is the most active station, also in digital modes:

3208,00 "BEACON" Kaliningrad 'P' CW 23,07 15.02.95 at 23:12 UTC
into high speed CW, marker silent then into RTTY (see below)
after RTTY cast, the marker was back again.

3208,00 UNID RTTY-System RTTY 23,15 15.02.95
Synchronization sequence at the beginning, then 50 Baud PSEUDO#
bitstream (POL-ARQ synchronization possible, but this is only a
coincidence)

3807,00 UNID RTTY-system RTTY 22,15 15.02.95

Same system as on 3208 ! First bits inverted. During the RTTY cast, the marker was not heard, immediately after RTTY ceased, the marker was back as usual.

The 'Russian Man'

The 'Russian Man' numbers stations transmits every morning at 08.00 UTC on 14890 and at 08.20 UTC on 11270 kHz. The format used is as follows:
'615 615 615 40577 40577' repeated for 10 minutes, followed by the next message. When they are finished a '00000' message is sent.

On 26-2 at 08.00 UTC, the Russian Man was very busy. I wonder who and where '615' is. This is what I caught: no activity on 11270, only a carrier for a couple of minutes, all messages were on 14890 kHz. It was also the first time that a digital mode was heard.

08.00: 615 40577
08.05: pause
08.10: 615 11111 40237
08.20: 615 40737
08.30: 615 42967
08.40: pause
08.50: 615 11111 42607
09.02: into a digital mode for ca 30 secs
09.02: pause
09.10: 615 11111 42377
09.20: pause
09.30: 615 11111 43207
09.40: pause
09.45: 615 11111 00000

Mossad

I received a couple of loggings accompanied with the question about the different callsigns.

4665.00kHz 0417h 23 Feb 95 AM 33333 English Numbers
Calling VLB2. Same voice as EE#. Tx continued past 0430
without follow-up "message," just continued call.

The term 'different callsigns' is not exactly correct. The transmissions begin with a network identifier and sometimes a numerical code to indicate the status of the message. Just 'VLB' would mean that messages will follow. VLB1 means 'there is no traffic but a new schedule is being activated', while VLB2 means 'there is no traffic for you, watch the next schedule'.

The CIA is a well know numbers provider. Here's the sked:

REMINGTON NUMBERS SCHEDULE

times are in UTC , frequencies in KHz

"TYPE" is in the format "XXY" - "XX" ="SS"(SPANISH), "EE"(ENGLISH)
 "CW"(MORSE CODE), "Y" = (# DIGITS), "*" = (EVERY DAY), "#"= CEASED

TIME	FREQ.S	DAYS	TYPE	TIME	FREQ.S	DAYS	TYPE
0000	9074/11532	TWThF	SS4	1300	#5090/6840	SuWSa	SS4
	5090/6840	TTh	CW5		10570/13808	W	SS4
					8418/11532	Sa	SS4
0100	6802/9074	T	SS4				
	9074/11532	WThSu	SS4	1400	9074/11532	TF	SS4
	9222/11532	F	SS4		8418/10665	Sa	SS4
	6802/9074/				5090/6840	WTh	EE
	11532	Sa	SS4		14750/15810	T	SS4
0200	4670/5812	MSa	SS4	1600	8418/10665	Su	SS4
	6802/9074	TTh	SS4		11532/16450	WTh	SS4
	5812/8418	F	SS4		13808/14750	Th	EE
	5090/6840	Th	EE3/2				
0230	6840/9958	*	SS4	1700	15651/16450	MF	SS4
0300	4307/4670	MTh	SS4		11532/16450	WTh	SS4
	9074/11532	TWSu	SS4	1730	9958/18737	*	CW4
0330	6840/11605	*	CW4	1800	10665/13452	MTh	SS4
					11532/16450	F	SS4
					7836/9958/		
0400	8418/11532	M	SS4		13808	Sa	CW4
	6802/9222	TF	SS4				
	9222/11532	W	SS4	1900	9222/11532	T	EE
	9074/11532	Th	SS4		15810/17693	Sa	SS4
	5812/6802	Su	SS4				
0500	8418/11532	M	SS4	2000	4670/6802	SuT	SS4
	6802/8418	WSa	SS4		11532/16450	M	SS4
	5812/6802	F	SS4		11491/16310	TThSa	SS4
					10665/11532	F	SS4
					#5090/6840	*	SS4
0600	4670/6802	MW	SS4				
	#8412/9074	Th	SS4	2100	11532/16450	W	SS4
	#5812/6802	ThF	SS4		18621/16450	W	SS4
	#5090/6840	*	SS4				
0700	5812/6802	T	SS4	2200	15651/16450	T	SS4
					9074/14421	W	SS4
					11532/13452	Th	SS4
1000	5238/6802	M	SS4		#5090/6840	*	SS4
	5812/6802	T	SS4				
	5238/6802	Th	SS4	2300	9074/11532	TTh	SS4

15651/16450 F SS4

1030	7725/10324	*	SS4
1100	11532/14421	Su	SS4
	5238/5812	MTh	SS4
	9074/13452	TF	SS4
	9074/10665	W	SS4

Richard Brown sent us a book-tip:

The Sigint Secrets, The Signals Intelligence war, 1900 to Today
author: Nigel West
publisher: William Morrow & Co Inc, New York
ISBN 0-699-07652-1

'' It's a history (partial) of the British signals intelligence efforts
from the beginning of radio to approx 1986.
For an example, the British government, at one time, required ALL cable
companies to deliver copies of ALL telegrams to them within a period of
10 days of transmission (information suppressed until Feb 1967 (pg 112))''

New numbers station

There is a new numbers station on at 19.00 UTC, Mondays on 6645 kHz AM. The
station starts with 3 minutes of Jean-Michel Jarre music, then into 17 5F
groups. Then "again, again" and 17 groups repeated, ending with a minute
or so of the music. YL's pronunciation is odd with 2=Du and definite roll
of the "R"s. The message coding is very peculiar, only certain few numbers
in a few of the 17 groups seem to change each week.

As J.M. Jarre is a French musician and '2' in French is 'deux' -very much like
'du'- I wonder... could this be a French station ?

Numbers Club

I mentioned the Enigma numbers club in WUN #1. For those who are interested
in the European Numbers Information Gathering and Monitoring Association, you
may write for more info to B.R.C., 31 Manor Row, Bradford, West Yorkshire,
BD1 4PS, United Kingdom, or write to e-mail address mikec@praxis.co.uk

A new riddle within a mystery, wrapped in an enigma :-)

There's an unid station on 7639.5, 13967.2 and 20.996.2 kHz who transmits
a message every 10 minutes. The transmissions are in Sitor-B (FEC). The odd
thing about this station is the kind of messages it broadcasts. They consist
of two lines. The first line is always a series of 3 even numbers followed

by the time MINUS 8 MINUTES. The time is given in UTC. The second line of each message is always as follows: 2 dashes, 2 vertical dashes, 5Z 5Z TR TR and again 2 dashes.

I captured the following transmissions. These are the first lines:

```
15.48 UTC: ''20 20 20 16 16 16 30 30 30 15H40M58S''
15.58 UTC: ''12 12 12 30 30 30 12 12 12 15H50M59S''
16.08 UTC: ''30 30 30 10 10 10 30 30 30 16H00M58S''
16.18 UTC: unreadable
16.28 UTC: ''18 18 18 24 24 24 26 26 26 16H20M59S''
16.38 UTC: unreadable
16.48 UTC: '' 8 8 8 14 14 14 22 22 22 16H40M58S''
16.58 UTC: ''12 12 12 30 30 30 24 24 24 16H50M59S''
17.08 UTC: '' 4 4 4 4 4 4 30 30 30 17H00M59S''
17.18 UTC: '' 0 0 0 6 6 6 30 30 30 17H10M58S''
```

The second line of each message: '' --ii 5Z 5Z TR TR -- ''
So far no id has been noted.

Additional info from my 'Digital Review' column, April 1998:

::: Timestamp station

The mysterious timestamp station is around for several years now. The station transmits from a spot approximately 60 km NE of Paris. According to a usually reliable source, they are a series of observatories that are fed correctional (geophysical??) data from the transmitter site, which, too is an observatory just outside Paris. It sends a summary once a day, too. There are a number of freqs in use, though not usually any more than 3 per 18-hour period - probably for coverage redundancy and reliability in changing propagation conditions.

o Frequencies: 5112.2 5127.2 5725.2 7639.2 7762.2
 11482.2 13967.2 15741.5 19013.5 20962.5 20966.2

o Modes: Sitor-A, Sitor-B

o Format and operational notes

The station is supposed to be on the air for 18 hours a day, but during a three weeks listening session the off air period varied from 2 to 6 hours.

Every 10 minutes a string of figures followed by the time being UTC or UTC+1 is transmitted in Sitor-B. This is the weird part of the story. Why would a French station stick to British time (UTC = British winter-

time and UTC+1 = summertime), unless the data that is being transmitted is destined to British users.... It certainly looks that way because the language used is English. The freqs are duplex freqs but I haven't found any QSX freq. Communications with the other stations are in Sitor-A and the messages are encrypted except for the callsigns and a few words in plain English. After each line of on-line encrypted stuff follows +? The other stations apparently have to react. The second line of the Sitor-B 'time stamp' messages changes after each Sitor-A message.

[Note that the actual time difference was in the past UTC(+1) + 8 mins, but they changed it now to UTC(+1).]

Example:

```
-26 -26 -26 -30 -30 -30 -24 -24 -24 - 19h30m54s
-- jn jn jn jn 7j 7j --
```

There are three parameters in the first line, each one is repeated three times, followed by the time stamp. The parameters are always even numbers, both negative and positive in the range of 2-30.

The character groups in the second line follow a specific pattern. As I said, the pattern changes after each Sitor-A message. During a listening period of three weeks late last year, I noted the following pattern:

```
-- --
-- JN JN --
-- JN JN JN JN --
-- JN JN 7J 7J --
-- JN JN JN JN 7J 7J --
-- 7J 7J --
-- --
-- JN JN --
etc
```

When the Sitor-A transmissions take place, the next Sitor-B transmission is often skipped. Sometimes, if they finish their conversation in time, the transmitter stays on and they change from Sitor-A to B and go on with the normal routine.

It seems that other stations are replying because I noted Sitor-A to PAVI119 and others consisting of encrypted one-line messages followed by +? after which (I think) the other stations are replying. Often also AAA+?, NNN+? and OK+? is transmitted.

Station id's or callsigns(?) noted so far are:

PAVI 118, PAVI 119, PAVI 120, PAVI 121, VIPA 230, and VIPA 231.

o Examples

Sitor-B transmission

-26 -26 -26 -30 -30 -30 -24 -24 -24 - 19h30m54s
-- jn jn jn jn 7j 7j --

-16 -16 -16 12 12 12 -26 -26 -26 - 19h40m54s
-- jn jn jn jn 7j 7j --

Sitor-A transmission

ok+?

3

pavi118

pavi119

vipa230

@

+?

ftxisqjmhdmehnkebsjdpftxisqjmhndbrnjfengjbsrpjuxaaflj

+?

qjmhdmehnkebsjdpftxisqjmhndbrnjfengjbsrpjuxaaflj

+?

tlmunpcojsdbfvdojtdxhymnghgfgwovlnjlmhpmoviwxrmdjaoa

+?

qznaxgrhylvfolqvtgwsfvqzllxvtzlaipimycgbovriknbwcppo

+?

suekutyzwarhhuvnhoeofhcicvcuudbycpwedorqhdxmabdnomn

+?

lbhoyahmgyncfzclqpknrlemixmvjcvukyobtmhhtvhiwdglghe

+?

fpyrdfqlmyqpctgrslpbyfenlhtkjjmzeiehsgvsukiipyujlbjh

+?

jatnashkkbresmggwkephndxazchahnjqvezpsoufnmwrscckiaf

+?

gasqpkegoekmfgiokivemqvmynhsqqohlqbgxaibfrbfbtcnpgj

+?

ohdaupjkljmbvbkmfhblmczjsbxwhshvrvqwcjukdquenjnmpb

+?

acpltuitaidxacpgznpvgkzobzdsbbaahkcfsqgyprqkfpyeipm

+?

<clip clip clip>

+?

wlvvozgaxkovlbkatrxcomki

+?

nnn+?

....and back to Sitor-B again. Note the change in the second line

-28 -28 -30 -30 -30 30 30 30 - 09h00m54s
-- jn jn jn jn --

-24 -24 -30 -30 -30 30 30 30 - 09h10m54s
-- jn jn jn jn --

Another example. Sitor-B into Sitor-A. Note the addresses pavi120, pavi121, then 'pavi120 deleted'. The second line changes again after the Sitor-A message.

-30 -30 -30 30 30 30 -16 -16 -16 - 18h00m54s
-- jn jn jn jn --

+?
2
pavi120
pavi121
@
+?
pavi120 deleted +?
ftxjapdcspwxmtlhspkezftxjapdcspysdhftszzqbdjdghvdbcdgd
+?
xjapdcspwxmtlhspkezftxjapdcspysdhftszzqbdjdghvdbcdgd
+?
~pbgempnbuawahudmgxivrzlgodrozkrdbxjpkzakcnaqhyimpl
+?
mfbcowcejenncbfkwcnbzcedfapqvdfvimqulayztwjdfzwpiag
+?
bflqjrvydmvvzpkcgvuvxqsczrnbqydsfnxqbgaztkycjacnkgcp
+?
aappicbgdtasb~zhtkmsbfglekeojdmeecndfsmzpjumedv~~cdh
+?
jsganljmxeegobfffqzkufleyxysjzwotndekhfmrdirfxmbphng
+?
ygbeitlscrcvvdjlijjllminwhpbkzhgkmsvvoyrcabr~umhlgn
+?

<clip clip clip>

-26 -26 -26 -20 -20 -20 -2 -2 -2 - 18h50m54s
-- 7j 7j --

Numbers & Oddities; the early days: February 1995-September 1995.

This is the WUN newsletter from March 1995, which was a N&O special. This special handles the Russian intelligence and diplo network that we

first called 'the Brotherhood' and later 'SOUND', and which is now better known as 'FAPSI'. Many updates followed, the most relevant updates can be found at the end of this article. A fully updated version of the FAPSI monitoring results was published in the WUN newsletter #9706.

```
=====
\\ \\ \\ \\      WORLDWIDE UTE NEWS      // // //
\\ \\ \\ An Electronic Club Dealing Exclusively in Utility Stations // //
\\ \\ \\      Vol. 1, No.3  March, 1995      // // //
=====
```

Edited by Richard Baker
WUN Electronic Edition Editor
ae411@yfn.ysu.edu
COPYRIGHT 1995 WUN

This newsletter is from the first dedicated electronic utility club in the world; the Worldwide UTE News club. No part of this newsletter may be reprinted in any manner without prior written approval.

However, this newsletter may be freely distributed and posted so long as the file(s) remain(s) intact and unchanged. To become a WUN member, send e-mail to the WUN listserver at majordomo@phoque.info.uqam.ca and in the BODY of the message type: subscribe wun

That's all it takes. There are no dues. A paper copy of the WUN Club newsletter can be obtained via our WUN publisher, Tim Braun, at: 15915 Smithey Dr., Haymarket, Va. 22069, USA, for the costs of printing & mailing at a rate of US\$1.50 per issue.

=====

(=- EXTRA EDITION =-)
(=- DIGITAL REVIEW -=) (=- NUMBERS & ODDITIES -=)

Monitoring the 'Brotherhood'
by Ary Boender

Internet: ary@bitbike.iaf.nl
Fidonet: 2:283/512.24
Copyright 1995 A.Boender

=====

Hello WUNners, in this extra edition of the WUN Newsletter, I'd like to introduce you to the 'Brotherhood', a Russian related diplo network that fits in both the 'Digital Review' and 'Numbers & Oddities' columns.

Chapter 1: The story so far (1979 - 1995)
Chapter 2: Examples of chatter, preambles and messages
Chapter 3: List of link-id's and Callsigns
Chapter 4: Frequency lists

```
(=- a huge THANK YOU goes to my fellow Brotherhood-monitors -=)
(=- Leif Dehio, Dave Batcho, Paul Scalzo and Don Schimmel -=)
(=- and to those who sent logs, comments & suggestions -=)
(=-      Thanks for the input and your time guys      -=)
```

[illegible]

The first encounters in the USA with the 'Brotherhood' stations were in the late 70's when they still used high speed CW (ca 32 WPM). Most of the early CW stations (PSN, BPA, SPK, WNY, YBU) are still active today. 'ROL' however disappeared completely. In the mid 80's the RTTY transmissions started. The speed used was 50bd. Messages to YBU were the most common ones in those days. Also messages to PSN were monitored. The callup was slightly different from the system that is used nowadays:

VVV PSN PSN PSN 2/245 VVV PSN PSN 2/245
NW NW
NR 271 GR 135
+ 5L or 5F groups

Then sometime in the mid-1980's they changed to the 5 group preamble they use now. But the original link designators were different then.

Callsign / Link-id

YBU	07386
SPK	06446
PSN	03861
KAC	00172
JMS	00484
GMN	05418
BPA	06373
WNY	01428
KRN	00484

Traffic has always been the same group of cypher systems including the substitution group at the end.

By the late 1980's they were being reported in most of the UTE publications. Don Schimmel reported them in one of the earliest issues of Monitoring Times as UNID and Bob Margolis reported them in PoPComm.

The NDO link has always been a strange one. Not much activity. Only one sked a week (on Wednesdays) and even that is not granted. The WFO / MIG link is the only known 2-way link in the Americas. Although it still operates somewhat clandestinely - minimum amt of chatter, etc. The station sending WFO is definitely the Cuban end (by propagation and bearings). The other end has been pin pointed in the New York City area, probably the Russian UN delegacy.

In the late 80's an European network of RTTY stations popped up, similar to a network that was active in the America's. Both networks are still very active today.

The master station in Europe was 'RCF'. Several frequency guides listed RCF as Ministry for Foreign Affairs in Moscow. After the disintegration of the USSR, the 'RCF' callsign disappeared. The new master station is as powerful as RCF was and one thing is for sure: this station is located in or very near Moscow as well. The station was DFed various times and every time Moscow appeared to be the source of the signal. It is very likely that RCF is still alive and kicking, but doesn't use its old callsign anymore.

Whether the master station or RCF really is / was MFA Moscow will probably remain a mystery. There are many other suggestions though varying from a shipping network to possible connections with TASS, KGB or GRU.

I stick to the theory that this is a diplo network. Whenever something hot is happening, like the Chechenya actions, the stations of the Brotherhood are making overtime, even on Sundays, while there are normally no transmissions on Sundays. The only station that is often heard on Sundays is BFR, which may indicate that it is possibly located in an Islamic country.

The master station transmits crypted messages (5-letter or 5-figure groups) to the other stations. There are fixed schedules for a couple of stations while others are reported less frequently. During the time that RCF was still in place they didn't need to have fixed skeds, as the traffic list system was being used. Now that this system is no longer in use, each link has one or two fixed skeds on an assigned frequency pair. This system is probably much safer, as the sender knows that the recipient received the message correctly. The auto-broadcasts to a.o. KUL, VKX, RAU and RKD are probably just circulars or routine traffic sent to the specific networks (transmitted blind and therefore repeated throughout the day on a larger number of frequencies). It appears that almost all the callsigns that were on RCF's traffic list are still there.

So far we have found the following fixed two-way schedules for Europe:

-
- 08:25-08:30 ??? to DKR
- 08:35 ??? to RJA

- 08:45 WQL to VNB and vice versa
- 09:10 ??? to UXW
- 09:25 ??? to JUA
- 10:05-10:10 ??? to CAZ
- 11:15 KKK to KUA
- 13:20 ??? to DKR
- 14:30 RGA to BFR and vice versa
- 14:50 ??? to RPO
- 16:35 ??? to Udz 21
- 16:50 ??? to JUA

The callups and messages can be divided into two groups: the most common for the America's and Europe goes as follows: ''4646464646464646 KUL KUL KUL KUL 1/226''. Note that 46's are transmitted instead of RY's, then the callsign of the recipient and the number of messages / number of 5-letter or 5-figure groups in this message.

The other one is yet only noted in Europe. The transmissions start with a selcal of 6-tones (the system is called Mazielka), followed by the callsign of the recipient sent in CW, then into RTTY where the preamble is handkeyed while the other system has an automated preamble. The Mazielka callup is fairly new, it has been reported since mid 1994.

The Mazielka is a selcal system that is used by the master station to wake up a station outside the normal fixed sked. It is only used to catch the operators attention, not to start the equipment remotely (just like the selcal used in aircraft). The fact that they switch to CW after the Mazielka is a sure sign that the operator has to prepare the equipment before they can start the transmission. The use of non-error correcting RTTY systems makes it practically impossible to establish a link automatically. The Mazielka has never been heard during the normal schedule times, so probably the Mazielka is used when there are very urgent messages that cannot wait 'till the regular schedule time. It seems that there are specific channels for rush traffic as well.

I think that a couple of the callsigns are not in use by only one station, but that KUL, VKX, RAU and RKD are in fact the callsigns of networks. This could mean that the automated transmissions to KUL etc include messages for all stations in such a network. This does not necessarily mean that there is only one callsign for every station in a network. As far as we know every station has a callsign of its own. However, the master station seems to use more than one callsign. VNB, KKK and RGA, which are believed to be transmitting from the same location are most probably callsigns of the master station. It seems that the master receives a different callsign on each specific two-way link.

What did we find so far ?

We have found several clues about the preambles and QSL system. Let's take

a closer look at the preambles. Each message starts with a preamble consisting of 5 groups, followed by the message itself. A typical preamble looks like this: 11177 00142 23687 05012 01109.

1st group: probably a message identifier, stating what kinda message it is, maybe also a priority code. 11144, 11166, 11177 and 11199 are the combinations heard so far. The most common are 11177 and 11199. The latter is being used for QSL purposes.

2nd group: the link-identifier, each link has its own id, except for stations who have a two-way link, in that case both stations have the same link-id.

3rd group: the crypto-factor.

4th group: the first two digits are the date and the last three are the message number.

5th group: the first four digits represent the number of groups in the message + 1. The extra group is most likely the crypto-factor (3rd group of the preamble). The last digit is either a '1' or a '9'.

After the messages have been sent, the operators sometimes have a little chat. In the America's the conversations are in often poor English while on the European side often cyrillic is used and also German words are used.

As I mentioned earlier, there are also QSL messages. The original messages can be transmitted on other frequencies and even on other days then the day the QSL messages gets out. The first group of the preamble is always 11199. The messages always seem to start with 55555 followed by 77011, while the last groups represent the QSLed messages. A typical QSL preamble and message looks like this:

```
11199 00142 00000 18010 00069
55555 77011 00089 00090 00091
```

Five different cipher systems have been noted:

- 1) The 3rd group of the preamble is 00000 and the message consists of 5L groups.
- 2) The 3rd group of the preamble consists of random digits and the message consists of 5L groups.
- 3) The 3rd group of the preamble consists of random digits and the message consists of 5F groups and the last group is NOT 11111.
- 4) The 3rd group of the preamble is 00000 and the message consists of 5F groups and the last group is 11111.
- 5) The 3rd group of the preamble is 00000 and the message consists of 5F

groups and the last group is NOT 11111.

The Brotherhood uses various RTTY modes, the most common is Baudot 75bd. Sometimes 50 or 100bd is used. They also use a Russian version of Piccolo, better know as Crowd36 or CIS Piccolo, Other, yet unknown, exotic modes are used as well. Then there is ofcourse the Mazielka and CW is used as well, mostly for chatting and callups.

Who are the partners in this Brotherhood ? Well, it's all guesses ofcourse. No-one steps forward and says 'he you guys, it's me you're looking for' :-) According to DF-research, the European master station must be located in the Moscow region, while the WFO / MIG link is a link between Cuba and the New York area, probably the Russian UN legation. Station GMN could be located in Mexico City.

In 'Soviet Signals Intelligence' by professor Desmond Ball, he listed Soviet Sigint Posts located in the Western Hemisphere. The sigint posts are in Mexico City, Washington 2x, New York City, San Francisco, Managua, San Jose, Buenos Aires, Montreal, Ottawa, Chicago and Lima.

So far, 13 transmission schedules have been noted for the Brotherhood in the America's. There are 12 listed sigint posts and 13 schedules, so if there is a connection between the schedules and the sigint posts, then there must be at least one more sigint post.

The European scene is a bit different; we have not yet determined where the out-stations are located. Most probably outside Russia and in the eastern part of the country.

Then there are the QSF messages: 1/1, 2/1, 3/1, 7/1, 8/1, 9/1 QSF3

The official meaning of the QSF-code is 'I have effected rescue and am proceeding to base'. We can safely assume that the Brotherhood-QSF's have nothing to do with the official meaning of the code. Intensive monitoring of the stations revealed that QSF2 means a normal schedule, QSF4 means no schedule and QSF3 is yet unknown but could mean that an alternative schedule will be used. On the days that QSF1 had been indicated a QRU was sent.

There is a very significant feature to the 5-letter traffic. The last group of every message is a simple substitution which indicates the date the message was composed and the group count which is always 3 less than the group count shown in the preamble. The substitution is:

0	I	U	Z	T	R	E	W	A	P
0	1	2	3	4	5	6	7	8	9

For example:

11177 00148 57477 26811 00609

QKANG XOBJZ VEVXX UEORW

The last group translates to 26057 -- 26th of the month, 57 groups.

ETFNJX TKAGAS

On the American network the sequence 'ETFNJX TKAGAS' is frequently heard. It is always transmitted in sloppy FSK Morse for a couple of minutes and then the transmission stops or continues in RTTY. Because the sloppy way in which this message is keyed, it most probably should read 'E/NJX TKAGAS' but also E/NJX QAG AS is possible.

The station simply comes up without any callsign and begins broadcasting ETNJX TKAGAS over and over for a period of ca 10 minutes. On most occasions, approximately 30 minutes later, one of the regular stations comes up and sends normal traffic but out of the fixed schedule for that station. The 'ET' messages have never been observed on the regular daily scheduled frequencies. They are transmitted on the same frequencies as the QWK messages that are also on the air for the last 15 years. The QWK messages are sent several times a year on one of the regular schedules along with the regular traffic. For example, on Dec. 3, 1994, the following was at the beginning of BPA's regular schedule:

```
QWK QDG FM 5/12 TO NEXT QWK
FM 00.00 TO 13.00 QSW 10698/7684/13532
FM 13.00 TO 24.00 QSW 16224/13532/19612
```

Also on Dec. 3, 1995 the following was sent at the end of SPK's regular traffic:

```
QWK QDG FM 5/12 TO NEXT QWK
FM 00.00 TO 12.00 QSW 10183/7418/13227
FM 12.00 TO 24.00 QSW 19808/16144/13227
```

ET messages have been heard on every one of the daytime frequencies listed in the messages above. And these messages on these frequencies are almost always copied on a Saturday or a Sunday, but occasionally during the week as recently as March 22, 1995. The QWK message then seems to say "During the times indicated I will use the following as _standby_ or _alert_ frequencies." Until February 1995, there were no reports of such a string on the European network.

Recently a sequence, very much like the American one, was heard and it was keyed in the same sloppy way. The sequence was slightly different from the American one. This one reads 'E/NJX TKAZAS'. The string was recorded and played back for -I guess- a million times by several monitors and fed into a couple of decoders. Although it was a tough one to write down, we are 100% certain that the string is correctly decoded.

CW powerhouses

>>>>>>>>>> Chapter 2: Chatter, preambles and messages <<<<<<<<<<<<

11177 60069 00000 03118 00531

gru

11177 60069 00000 22209 01301

72747	28417	50560	87313	85526	80632	52837	50418	16664	76399
58123	43603	78923	58766	15986	49421	34805	14025	78515	74440

[illegible]

11177 00070 00000 02012 00509

95511	17087	98320	83286	97066	36253	72549	37069	35360	10784
48040	33879	71438	38539	02451	07605	78635	83245	55568	59601
55663	91143	62376	59010	04870	71347	93615	52923	73086	69033
61524	28127	89014	24432	41604	85779	98200	90728	49032	53639
90008	91002	44796	05048	91058	98563	32569	45745	10160	

gru gru sk sk

The station that started my interest in this network was RCF. I captured its signal for the first time in the early eighties. Several frequency lists listed this station as MFA Moscow. RCF often transmitted callup lists that are similar to the traffic lists that many of you may know from coastal stations. Note the significant difference between the callups in the above listed examples and the RCF broadcasts below. RCF started their messages with DE RCF, while the master station now only uses the callsign of the recipient, not their own callsign !

46

cq cq cq de rcf cq cq cq de rcf

```
for udz21 caz rpo fru bla rkg rkm bxl uro nr 05
for  acd trp rcx81 wnk nr 06
qoo  nr 05 gr 189  nr 06 gr 219
```

46

cq cq cq de rcf cq cq cq de rcf

```
for jua rxx fqx udz21 caz rpo fru bla rkg rkm bxl uro nr 05
for acd trp rcx81 wnk nr 06
qoo nr 05 gr 189 nr 06 gr 219
```

```
ryryryryryryryryryryryryryryryryry
cq cq cq  de rcf      cq cq cq  de rcf
for  jua rxx fqx udz21 caz rpo fru bla rcx81 fjn rkg rkm bxl
```

[illegible]

```
cq cq cq de rcf      cq cq cq de rcf  
for all nr 69  
for glk owr dpl~bx ptf dkf wkl kua rss wql lsg nr 08/70  
for qru  
qoo nr 08/70 gr 292 nr 69 gr 1122
```

46
v_{kx} v_{kx} v_{kx} 1/476 v_{kx} v_{kx} v_{kx} 1/476 v_{kx} v_{kx} v_{kx} 1/476
46
v_{kx} v_{kx} v_{kx} 1/476 v_{kx} v_{kx} v_{kx} 1/476 v_{kx} v_{kx} v_{kx} 1/476

wekhe eykuw ntiut pesko hfkbc tehsv lxfvh cczzk znxjp qmweh
ealxe tmdfn qackt tgbhp nsguf sfbay arbdr whqad hkpuq zivrl
vipne gwgio fgcfu aajzc wzjum tcoho brbrs xdpbd pgdts utifg

A difference between the European and American networks is the lack of chatter on the American side. Here in Europe we have occasional chatter between the operators. In the America's this seldom happens. The words 'TIKAS' and 'SEE' are often used, mostly when the operators have a 'technical' chat. 'TIKAS' probably comes from Ticaí or Tikat which means 'to tick' in various Slavic languages. So TIKAS probably means 'ticker' or 'telex operator / telex / telegram / telex machine' or whatever. The use of SEE in "OM AS SEE A UR PER?" indicates this translation as well


```
all   qtc   3/1013
all   qtc   3/1013
12/12   wrk   qsf  4
12/12   wrk   qsf  4
```

qru qru sk sk

YBU sent this right after his callup and before any other traffic was sent:

QWK QDG FM 1/11 TO NEXT QWK:

FM 00.00 TO 04.00 QSY 11212/10135/ 8147 QSW 10243/ 8108/ 5837
FM 04.00 TO 11.00 QSY 8225/ 7610/ 6308 QSW 6845/ 5877/ 5258
FM 11.00 TO 14.00 QSY 6645/12530/17325 QSW 5797/11406/16308
FM 14.00 TO 21.00 QSY 16830/18290/19580 QSW 15682/17490/18839
FM 21.00 TO 24.00 QSY 18876/14814/11180 QSW 17490/13627/10294

Then he sent "AGN AGN" and repeated it. Later that same day, station WNY (on high-speed CW - 34 WPM) sent this:

VVV VVV WNY WNY WNY

NW NW

QWK QDG FM 1/11 TO NEXT QWK
FM 0000 TO 0300 QSW 8144/6881/5745
FM 0300 TO 1200 QSW 8144/6881/9246
FM 1200 TO 2400 QSW 10131/15559/8158

RPT AGN RPT AGN

((repeats entire msg))

Traffic sent to 'JMS' contained this before the regular traffic:

February 03, 1995 22.30 UTC 16842.5 kHz

ILC QDG FM 4/2 TO QWK
FM 00.00 TO 13.00 QWS 10713/8118/13541
FM 13.00 TO 24.00 QWS 18053/16491/13541
QWK QDG FM 4/2 TO NEXT QWK
FM 00.00 TO 13.00 QSW 10713/8118/13541
FM 13.00 TO 24.00 QSW 18053/16491/13541

To show you the similarity in traffic on both the European and the North American sides, I quote a piece of a transmission from Moscow to -I guess- DKR:

GXWHQ UJBAZ FZLCV WNEGK JZAHF MWZIJ WNEZO QQKLN WKTUS YUSJZ

HIOUK JBUPV SKLBI JVTCW KPZJW UTUUT

OM PSE SEE TIKAS
HR RPT AGN

04.00-06.00

QRG 1 18565/16058/15683/13466/12158/11028/10328/8487/8178/7537

QRG 2 14578/11536/11134/8043/7867/7376/6888/5414/5858/5021

06.00-14.00

QRG 1 23170/22825/21860/18587/20071/18234/15683/14578/16337/12158

QRG 2 18234/18573/18617/17488/18364/13466/11028/10218/8877/7833

14.00-18.00

QRG 1 12131/15733/17488/16337/18617/16184/18308/14486/16058/11614

QRG 2 7814/10315/12188/11028/12188/11536/12131/8203/8843/5478

18.00-04.00

QRG 1 10512/10218/11068/8815/10707/8826/8487/7608/7885/5858

QRG 2 6885/6888/7376/6884/6885/6888/5836/5015/5771/4526

OK ?

WRK FM 01 11 80 KWK QUW TO NEXT QWK

ALL OK?

PSE ALL QSP TIKAS

NIL

PSE QSL

CFM

K

QSL messages which always bear a 11199 as the first group in the preamble, and begin with 55555. Recently a startling message was sent by YBU. It seems to be the first unenciphered code ever seen on the Brotherhood. Here is the entire message:

11199 00148 00000 20269 01759

55555 77011 99641 99749 99736 99719 99726 99667 99635 99749

99736 99710 99750 99736 99751 99762 99640 99607 99749 99736

99748 99749 99736 44326 99736 99612 99721 99736 99705 99736

99678 99736 99688 99744 99641 99744 99641 99635 99696 99696

99641 99655 44326 99736 99607 99704 99737 99688 99744 99641

99744 99750 99750 99696 99641 99768 99655 44326 99736 99704

99664 99751 99688 99744 99641 99744 99750 99750 99696 99750

99635 99655 44326 99607 99751 99698 99737 99639 99744 99750

99721 99688 99721 99641 99750 99744 99750 99641 99636 99744

99736 99711 99649 99736 99635 99696 99736 99656 99736 99635

99641 99736 99749 99750 99749 99736 99719 99756 99740 99736

Analysis shows that starting at the third group, this message uses a trinomial (3-digit) code. When sent as 5F groups, the first two digits of each 5F group are nulls. All of the code groups begin with either a 6 or a 7 except for the one group (repeated three times in the message) which uses 44 as the nulls.

"SULTAN BORN DOTHER (3500/54)" good example of bad English; I assume the 3500/54 is the weight and length in metric of the new born daughter.

Brotherhood link-id's and callsigns. The '*' marks stations that also appeared on the RCF traffic lists.

Link	Callsign	Remarks	RCF
=====	=====	=====	=====
	RAD		
	ACD		*
	BLA		*
	BNV		*
	BXL		*
	DPL		*
	EWZ 42		*
	FJN		*
	FQX		*
	FRU		*
	GLK		*
	LSG		*
	OBX		*
	OWR		*
	PTF		*
	RCX 81		*
	RKG		*
	RKM		*

RSS		*
RXX		*
TRP		*
URO		*
WKL		*
OTD		*
SCJ		*
CMU		*
DMA		*
RQO		*
RZJ		*
RMM		*
EWZ	40	*
UDZ	27	*
UXG		*
KDN		*
ROL		
00030	BFR	(2 way contact with RGA)
00030	RGA	(2 way contact with BFR)
00052	NQX	
00070	RAU	
00098	VTX	
00099	RSZ	
00116	BPA	
00117	HZW	
00119	GMN	
00125	MIG	(2 way contact with WFO)
00125	WFO	(2 way contact with MIG)
00126	PSN	
00127	JMS	
00128	KAC	
00135	BAR	
00139	WNY	
00142	KUL	
00148	YBU	
00149	DZR	
00156	NDO	
00162		
00166	VKX	
00168	SPK	
00177		
00178	KRN	
00208	RKD	
10042		
10075		
10163		
20054	UDZ 21	(2 way contact with ???) *
20054		(2 way contact with UDZ 21)

30022	KUA	(2 way contact with KKK)	*
30022	KKK	(2 way contact with KUA)	
30044			
30088			
40034	UXW	(2 way contact with ???)	
40034		(2 way contact with UXW)	
50002	CAZ	(2 way contact with ???)	*
50022		(2 way contact with CAZ)	
50035	JUA	(2 way contact with ???)	*
50035		(2 way contact with JUA)	
50079			
60003			
60047			
60069			
70060	DKR	(2 way contact with ???)	*
70060		(2 way contact with DKR)	
80031			
80038	RPO	(2 way contact with ???)	*
80038		(2 way contact with RPO)	
80061	VNB	(2 way contact with WQL)	
80061	WQL	(2 way contact with VNB)	*
90051	RJA	(2 way contact with ???)	
90051		(2 way contact with RJA)	

>>>>>>>>>>>>>>>>>>> Chapter 4: Frequency lists <<<<<<<<<<<<<<<<<<

Brotherhood frequencies, Europe Last update: 29-3-1995

* indicates inactive channel

FREQUENCY	Link-ID	TIME	RTTYMODE	
4873,00	<00142>	18,50	F1B-75	to 'KUL' /after 6798 transm.
4880,00	<00142>	18,52	F1B-75	to 'KUL'*
6798,00	<00142>	19,15	F1B-75	to 'KUL'
7525,00	<00149>	16,25	F1B-100	'???' to 'DZR'
7692,00	<?????>	16,35	F1B-75	
8084,00	<00030>	14,47	F1B-75	'BFR' to 'RGA' QSX 10767
8165,00	<00142>	7,27	F1B-75	to 'KUL'
10125,00	<?????>	13,50	F1B-75	
10183,00	<00166>	10,36	F1B-75	to 'VKX'*
10202,00	<?????>	9,25	F1B-75	
10218,00	<50035>	15,57	F1B-75	'???' to 'JUA' ???
10244,00	<?????>	14,45	F1B-100	
10260,00	<50035>	16,50	F1B-75	'???' to 'JUA'
10410,00	<00142>	7,15	F1B-75	to 'KUL'

10426,00	<?????>	15,06	F1B-75	
10453,00	<70060>	15,12	F1B-75	'???' to 'DKR'
10482,00	<90051>	18,18	F1B-75	to or from 'RJA'
10485,00	<80061>	8,45	F1B-75	'WQL' to 'VNB' QSX 13425
10584,00	<00142>	14,19	F1B-75	to 'KUL'/after 12193 transm.
10586,00	<00142>	14,25	F1B-75	to 'KUL'
10672,00	<00149>	16,25	F1B-100	'???' to 'DZR'
10735,00	<90051>	15,30	F1B-75	'???' to 'RJA'
10744,00	<00052>	9,15	F1B-75	to or from 'NQX'
10760,00	<10075>	15,05	F1B-75	
10762,00	<00030>	14,48	F1B-200	'RGA' to 'BFR'
10767,00	<00030>	15,00	F1B-75	'RGA' to 'BFR' QSX 12239
10915,00	<80038>	15,05	F1B-75	to or from 'RPO'
11132,00	<00166>	12,00	F1B-75	to 'VKX'*
11412,00	<60069>	16,09	F1B-75	
11413,00	<60069>	15,36	F1B-75	
11421,00	<00149>	15,27	F1B-100	'???' to 'DZR'
11433,00	<30022>	15,50	F1B-75	'KKK' to 'KUA'
11434,00	<10042>	18,25	F1B-75	
11436,00	<00149>	15,40	F1B-100	'???' to 'DZR'
11440,00	<30022>	11,31	F1B-75	'KUA' to 'KKK'
11468,00	<00149>	14,26	F1B-100	'???' to 'DZR'
11477,00	<?????>	14,40	F1B-75	
11487,00	<30044>	14,38	F1B-75	
11507,00	<80038>	15,05	F1B-75	to or from 'RPO'
11541,00	<50035>	17,13	F1B-75	'JUA' to '???' QSX 10260 kHz
.				backup channel only ! QSY from unknown freq.
12124,00	<00166>	12,05	F1B-75	to 'VKX'*
12130,00	<00098>	15,55	F1B-75	'???' to 'VTX'
12132,00	<00149>	9,20	F1B-100	'???' to 'DZR'
12134,00	<00098>	15,35	F1B-75	'???' to 'VTX'
12137,00	<00162>	10,10	F1B-75	
12144,00	<20054>	16,37	CW	'UDZ 21' to '???' QSX 14854
.				backup channel only ! QSY from unknown freq.
12146,00	<10042>	11,43	F1B-75	
12151,00	<?????>	15,15	F1B-75	
12152,00	<?????>	17,17	F1B-75	
12152,00	<70060>	9,45	F1B-75	'???' to 'DKR'
12157,00	<?????>	9,18	F1B-75	'???' to 'RAD'
.				+UNID RTTY-mode F1B-200 PSEUDO#-bitstream
12174,00	<00052>	13,30	F1B-75	'???' to 'NQX'
12180,00	<00166>	15,12	F1B-75	to 'VKX' after 14852 transm.
12180,00	<00070>	14,28	F1B-75	to 'RAU' after 14980 transm.
12193,00	<00142>	14,15	F1B-75	to 'KUL'
12194,00	<00052>	9,43	F1B-75	to or from 'NQX'
12197,00	<00142>	14,12	F1B-75	to 'KUL'
12223,00	<20054>	17,30	F1B-75	to 'UDZ 21' ???
12239,00	<00030>	15,05	F1B-75	'BFR' to 'RGA' QSX 10767

12332,00	<10042>	14,36	F1B-75	
13016,00	<00125>	14,17	F1B-75	'MIG' to 'WFO'
13393,00	<60003>	15,56	F1B-75	QSO 14412 = altern. freq./QRM
13400,00	<00030>	13,20	F1B-75	'RGA' to 'BFR' QSO 12239
13420,00	<00030>	13,15	6-tone/CW	'RGA' to 'BFR' /
.				RTTY on 13400 kHz QSO 12239 kHz
13420,00	<?????>	12,41	F1B-75	
13425,00	<80061>	8,53	F1B-75	'VNB' to 'WQL' QSO 10485
13506,00	<40034>	9,10	F1B-75	'???' to 'UXW'
13507,00	<40034>	9,20	F1B-75	'???' to 'UXW'
13520,00	<?????>	11,00	F1B-75	
14427,00	<40034>	09,27	F1B-75	to or from 'UXW'
14577,00	<80038>	14,59	F1B-75	'???' to 'RPO'
14587,00	<80038>	14,50	F1B-75	'???' to 'RPO'
14605,00	<00166>	15,01	F1B-75	to 'VKX'*
14608,00	<00166>	15,00	F1B-75	to 'VKX'*
14622,00	<00166>	12,18	F1B-75	to 'VKX'*
14622,00	<30022>	10,56	F1B-75	'KUA' to 'KKK' QSO 16054
14625,00	<00099>	14,28	F1B-100	to or from 'RSZ'
14630,00	<?????>	11,48	F1B-75	probably 'KUA'
14632,00	<30022>	12,30	F1B-75	'KUA' to 'KKK' QSO 16054
14640,00	<00142>	15,30	F1B-75	to 'KUL'
14736,00	<00125>	14,18	F1B-75	'MIG' to 'WFO'
14820,00	<?????>	14,20	F1B-75	
14830,00	<00030>	15,22	F1B-75	'BFR' to 'RGA'
14832,00	<?????>	16,05	F1B-75	
14834,00	<00208>	16,10	F1B-75	to 'RKD'
14842,00	<?????>	13,44	6-tone	
14852,00	<00166>	11,00	F1B-75	to 'VKX'
14854,00	<20054>	16,35	F1B-75	'???' to 'UDZ 21'
14863,00	<?????>	11,53	6-tone + CROWD	36 (14865 kHz)
14870,00	<?????>	14,33	F1B-100	
14894,00	<?????>	13,44	F1B-75	
14947,00	<30088>	10,07	F1B-75	
14950,00	<?????>	14,30	F1B-75	
14950,00	<?????>	14,34	6-tone	
14971,00	<00070>	14,10	F1B-75	to 'RAU'
14973,00	<00070>	14,12	F1B-75	to 'RAU'
14974,00	<00070>	14,12	F1B-75	to 'RAU'
14977,00	<00070>	14,12	F1B-75	to 'RAU'
14980,00	<00070>	14,10	F1B-75	to 'RAU'
14985,00	<00070>	14,10	F1B-75	to 'RAU'
15678,00	<?????>	12,44	F1B-75	to 'NQX'????
15678,00	<00052>	11,50	F1B-75	'???' to 'NQX'
15696,00	<?????>	14,50	F1B-75	'RGA' to 'BFR' ????
15696,00	<00030>	11,50	F1B-75	'RGA' to 'BFR'
15702,00	<00030>	10,48	F1B-75	'RGA' to 'BFR'
15707,00	<60047>	13,00	F1B-75	

15708,00	<00030>	15,30	F1B-75	'RGA' to 'BFR'
15710,00	<30022>	14,58	F1B-75	'KKK' to 'KUA'
15722,00	<00030>	11,05	F1B-75	'RGA' to 'BFR'
15734,00	<10042>	13,05	F1B-75	
15826,00	<?????>	9,30	F1B-75	to 'UXW' ????
15826,00	<40034>	9,45	F1B-75	to 'UXW'
15836,00	<?????>	12,53	CW	'???' to 'RAD' request QSY 11672/13434
16008,00	<10163>	9,20	F1B-75	
16018,00	<10163>	12,33	F1B-75	
16032,00	<30088>	9,55	F1B-75	
16054,00	<30022>	10,10	F1B-75	'KKK' to 'KUA'
16064,00	<30022>	10,53	F1B-75	'KKK' to 'KUA'
16081,00	<00166>	9,33	F1B-75	to 'VKX'*
16108,00	<?????>	7,54	F1B-75	
16153,00	<70060>	8,30	F1B-75	'???' to 'DKR'/also 13:20
16154,00	<70060>	8,45	F1B-75	'???' to 'DKR'
16155,00	<?????>	10,05	F1B-75	'???' to 'DKR' ???
16214,00	<?????>	9,54	6-tone	'???' to 'FQX'
16225,00	<?????>	16,35	F1B-100	
16232,00	<60003>	8,39	F1B-75	
16242,00	<00099>	17,00	F1B-100	to or from 'RSZ'
16244,00	<90051>	8,33	F1B-75	'???' to 'RJA'
16252,00	<00149>	11,47	F1B-200	to or from 'DZR'
16273,00	<00098>	8,15	F1B-75	to or from 'NXQ'
16277,00	<60069>	11,15	F1B-75	
16285,00	<00177>	8,45	F1B-75	
16285,00	<00099>	8,40	F1B-75	to or from 'RSZ'
16324,00	<30022>	11,40	F1B-75	'KKK' to 'KUA'
16332,00	<10042>	8,55	F1B-75	
16342,00	<10042>	11,28	F1B-75	
16344,00	<30022>	11,40	F1B-75	'KKK' to 'KUA'
17533,00	<30088>	10,15	F1B-75	
18092,00	<60003>	8,42	F1B-75	
18225,00	<00166>	11,00	F1B-75	to 'VKX'*
18250,00	<50035>	9,25	F1B-75	'???' to 'JUA'
18332,00	<10042>	9,14	F1B-75	
18420,00	<50079>	11,30	F1B-75	
18424,00	<10042>	14,05	F1B-75	
18440,00	<?????>	11,40	F1B-75	
18585,00	<50002>	10,10	F1B-75	'???' to 'CAZ'
18610,00	<80038>	10,35	F1B-75	to or from 'RPO'
18752,00	<60069>	7,31	F1B-75	
18835,00	<00030>	14,35	F1B-75	'RGA' to 'BFR'
20042,00	<60003>	8,50	F1B-75	
20340,00	<10042>	11,10	F1B-75	
20690,00	<80038>	11,47	F1B-75	to or from 'RPO'

Brotherhood frequencies, America's Last update: 26-3-1995

Messages are sent on the primary frequency and repeated right afterward on the secondary frequency.

Frequencies

Primary / secondary	Link-id	U.T.C.	Mode	Remarks
19957	00126	22.35	F1B-75	to PSN
13382.1	00125	21.15	F1B-75	to MIG
13382.1	00125	14.15	F1B-75	to MIG
14727	10424	00116	15.15	F1B-75 to BPA
14736		00125	14.15	F1B-75 to WFO
14736		00125	21.15	F1B-75 to WFO
16224	13532	00116	16.00	F1B-75 to BPA sometimes on Wed, Sat. & Sun
.				
16228	18805	00148	14.00	F1B-75 to YBU
16283	14236	00128	20.45	F1B-75 to KAC
16327	14376	00128	14.50	F1B-75 to KAC <not daily>
16327	14376	00128	20.45	F1B-75 to KAC occasionally, esp. Sat & Sun
.				
16448		00135	13.00	F1B-50 to BAR
16448		00178	17.30	F1B-75 to KRN
16843	13627	00127	22.30	F1B-75 to JMS
17450		00156	16.50	F1B-50 to NDO <Wednesdays only>
18081	16491	00127	16.20	F1B-75 to JMS occasionally. esp. Wed & Thur
.				
18081	16491	00127	22.30	F1B-75 to JMS occasionally
18828		00117	20.00	F1B-50 to HZW
19618	16138	00148	16.10	F1B-75 to YBU occasionally, esp. Wed
.				
19618	16138	00148	19.35	F1B-75 to YBU occasionally
19808		00168	13.45	F1B-50 to SPK occasionally
19808	16144	00168	16.00	F1B-50 to SPK sometimes on Sat. & Sun.
.				
19957		00126	22.40	F1B-75 to PSN
20140	17480	00148	22.00	F1B-75 to YBU
20588	16448	00139	19.00	F1B-75 to WNY
20733	18128	00119	16.45	F1B-75 to GMN
20823	18128	00135	21.00	F1B-50 to BAR
21867	18846	00168	16.00	F1B-50 to SPK

-o-o-o-o-o-o-o-o-o-o-

The 'Numbers & Oddities' column a.k.a. 'Spooks Newsletter' comes to you

courtesy of the Worldwide Utility News club. This newsletter may NOT be utilized, partly or wholly, in any other media format without the written permission of the editor (ary@luna.nl). Any breach of this may result in action under international copyright legislation.

To become a WUN member, send e-mail to the WUN listserver at: majordomo@qth.net and in the BODY of the message type: "subscribe wun" (without the quotation marks).

Check out the WUN web site at: <http://www.wunclub.com>

-o-o-o-o-conet-o-o-o-o-

Updates to the above article. The original updates were written between April 1995 and June 1996.

The 'Brotherhood'

Thanks for the many compliments that you sent me for the Brotherhood special. I hope that the story made you tune in to these stations. I wonder if the Brotherhood also has a network in Australia. Has anyone in this part of the world heard stations like this ? Does anyone know where the stations in Europe and America's are located ? Please, tune in as often as you can and let me know the results. It would be nice if we could unwrap this mystery. As promised there will be updates to this article in my columns. Here is the first update to the European frequency list: Callsign NQX must be NXQ.

Frequency	UTC	Link	Mode / remarks
-----------	-----	------	----------------

16008 kHz,	9.17,	10163,	F1B-75
12136 kHz,	15:32,	00149,	F1B-100 'DZR' to "Master" backup channel
11460 kHz,	15:32,	00149,	F1B-200 !! "Master" to 'DZR' (sked 15.30)
12174 kHz,	08.00,	00052,	F1B-75 to NXQ

Brotherhood update

One new link has been noted in April:

Callsign: RVV, Link-id: 20087, UTC: 14.20, Freq: 13.418 kHz.

The transmissions to VKX on 14605 kHz are now scheduled for 16.10 UTC.

'Brotherhood' update

A new sked for KKK (to KUA) can be found on 10850 kHz at 19.04 UTC.

In our WUN-special about the Brotherhood, I told you that it most probably is a diplo-related network. Just recently some new and very interesting info

came in. It seems that it is more than just diplo-related. According to usually well informed sources, this network belongs to an organization called Soud.

This organization was founded in 1977 by the Communist block and is basically an intelligence agency, accessible by all members of the former and still active communist block. The job of this organization is to gather information on everyone and everything - including their own and foreign embassy personnel. They are said to be based either on the premises of the Russian embassies and/or in separate installations. The organization's central computer is located in Moscow, and queries from members, regarding any subject are said to be handled in less than 4 hours time.

This theory makes sense, because it would explain:

- the use of Baudot telegraphy as some of the members don't have the money to get hold of sophisticated equipment and with so many nations involved it is of course a question of standardization!
- the almost worldwide appearance of this net
- the question "ruskih registrow ok ?" which is rather puzzling if this were to be a solely Russian net (see WUN#3).
- the use of non Russian words ("bereit", "Si")

Ok, who are they ? Little is known of the ultra secret intelligence organization Soud "Soglasheniye o Sisteme Objedinennowo Utschotja Dannych o protiwnike" which is Russian for "System for mutual gathering of info about the enemy". This organization was founded in 1977 and was meant to serve as an electronic information gathering association between the intelligence agencies of the socialist camps. The members of Soud were the Soviet Union, Bulgaria, Hungary, Poland, Czechoslovakia, Mongolia, Cuba and ofcourse Eastern Germany. They were later joined by Vietnam.

The immediate cause for the foundation of Soud were the 1980 Olympics in Moscow. To safe guard the USSR from 'foreign hostile forces' during the Olympics, the main task for Soud was to gather as much information about the 'enemy' as they possibly could and store this info as comprehensive as possible. Because the western countries boycotted the Olympics in Moscow, most of the 'enemies' didn't show up either. Nevertheless Soud became an absolute hit in spy-land. Their success was so huge that they survived the end of the cold war and even the collapse of the communist block.

After the foundation in 1977, it took about 2 years before they became active. Besides the initiator, the KGB, no agency was as fanatical as the East German Stasi. Soud still gathers information about all possible 'enemies' of the alliance which are stored in the main computer in Moscow and queries from members, regarding any subject are said to be handled in less than 4 hours time.

The Soud databanks include names of agents, zionists, hostile religious organizations and organizations of emigrants, journalists, diplomats, cultural and commercial attach s, representatives of airlines, etc etc. Information found in Stasi documents reveals that in 1989 more than 11100

names were collected. Most of them included a personal description, the maiden name of the mother and a sample of the handwriting.

Brotherhood update

A new sked for messages to RAU can be found on 13880 kHz at 08.10 UTC. UXW has a fixed sked at 09.10 UTC on 14426 kHz with RLX in Moscow, the other end of the link is on 13506 kHz. The link id for both stations is 40034.

- > The 'Brotherhood'/Soud stations RLX & UXW were extremely busy during the London conference on Bosnia, RLX sent monster messages to UXW for over an hour, so perhaps UXW is the Russian embassy in London. A strange header was sent from UXW to RLX on 14426 kHz 21/07/95, 09:11 UTC: 11177 40034 68983 21587 00043. Note that the last group of the message does not correspond to the usual brotherhood substitution system.
- > Soud update: Paul Scalzo found a new Soud station. The new station has callsign 'SVA'. The link identifier is yet unknown. There is a sked at 00.00 UTC on 10422.7 kHz in 75bd Baudot towards 'SVA'. The callup was in sloppy CW.
- > Soud: Rick Baker heard on 14736 kHz a new sked at 19.45 UTC on the WFO / MIG link. We finally know for sure where these guys are located. We knew already that WFO is the Russian UN delegation in New York. Now we also know that MIG is in Managua, Nicaragua !!! The Managua site is confirmed through Dave Batcho from an official US Government source. We also have proof that the Soud stations are using 10 and 40bd MFSK Crowd36. On 16214 kHz at 10.25 UTC selcal 'VDGB' was heard followed by a message to link 60015 both transmitted in 40bd. The usual operator chatter was in 10bd MFSK. This freq was earlier used for transmissions from Moscow to 'FQX', link id unknown. FQX may be the callsign for link 60015. Here's the header: 11177 60015 99+865 1BB77 00199
Other Soud 40bd freqs are: 10327, 11051, 11073, 12179 kHz with mostly encrypted traffic or sent in another exotic mode while unencrypted stuff can be found on 12128, 13398, 14632, 14659, 14817, 14823 and 16214 kHz.
Guy Denham writes from the UK that he caught the WQL / VNB link at 16.30 UTC on 5775 kHz (WQL link 80061) and on 6862 kHz he heard VNB although he is not 100% sure of the latter. The interesting thing that Guy noted is the use of the digit '3' at the end of the 5th group. This was sent on various occasions so a typo must be ruled out. Guy also copied traffic to the counterparts of RVV and DZR on links 00149 and 20087. Here are the skeds:
00149 RVV / RVC47. Traffic to RVC47 heard on 8057 at 17.55 UTC
20087 DZR / RBP71. Traffic to RBP71 heard on 9237 at 17.55 UTC
In both cases sloppy CW callup procedures were followed by 75bd RTTY.

Soud update

-
- o It seems that I made two serious bloopers in WUN#12. Sorry for that. The first one was in the SOUD update when I told you that the end that sends MIG is definitely in Managua. Well, that is true but the other end that sends WFO is NOT the Russian legation in NY. It is the large Russian transmitter site just outside Havana - the same site from which the other (one-way broadcast) SOUD transmissions come.
 - o Guy Denman from Portsmouth, UK, copied a new SOUD station on 7920 kHz using link-id 00074. This sked starts at ca 14.45 UTC. Guy also enclosed a recent sked for a bunch of the European transmissions.

Freq.	UTC	to	link	
12193	14.10	KUL	00142	
14980	14.10	RAU	00070	
10584	14.20	KUL	00142	repeat of 12193
12180	14.30	RAU	00070	repeat of 14980
10767	14.30	BFR	00030	
5775	15.25	WQL	80061	working VNB on 6862
6862	15.25	VNB	80061	
7920	14.45	?	00074	
15735	16.10	FQX	60003	
12195	16.30	GOD	00090	
10277	16.45	?	?	
10287	17.30	JSC	00190	
8057	17.45	RVC47	20087	
9237	17.55	RBP71	00149	(also noted at 17.30 -Ary-)
9073	17.55	UNID		
6798	18.40	KUL	00142	

- o Edgar White sends us a couple of loggings along with his best wishes for '96. Thanks Edgar, it is a good update to the America's sked.

Frequency	to	link	UTC	mode/speed/shift
16226.28	clg YBU,	00148,	14:00	BAUDOT 75/500
18803.26	clg YBU,	00148,	14:09	BAUDOT 75/500
14725.33	clg BPA,	00116,	15:15	BAUDOT 75/500
10422.35	clg BPA,	00116,	15:26	BAUDOT 75/500
21865.2	clg SPK,	00168,	16:00	BAUDOT 50/500
18844.24	clg SPK,	00168,	16:25	BAUDOT 50/500
20731.21	clg GMN,	00119,	16:45	BAUDOT 75/500
18185.28	clg GMN,	00119,	16:54	BAUDOT 75/500
16446.27	clg KRN,	00178,	17:35	BAUDOT 75/500
14465.28	clg KRN,	00178,	17:43	BAUDOT 75/500
16446.26	clg WNY,	00139,	19:09	BAUDOT 75/500
16841.26	clg JMS,	00127,	22:30	BAUDOT 75/500

- o SOUD. Edgar White copied SOUD when they messed up:
14724.5 clg BAR: SOUD link 00116 1515 Baudot 75/500 Tfc 3/210
10422.3 clg BAR: SOUD link 00116 1524 Baudot 75/500 Tfc 3/210
This link id, frequency and schedule is normally used for calling BPA.
Now BAR was called instead of BPA.
He also copied a sked for SPK (link id 00168)
QWK QDG FM 14/01 TO NEXT QWK
FM 00.00 TO 12.00 QSW 9144/7884/13451
FM 12.00 TO 24.00 QSW 19827/16218/13451

SOUD update:

- o A new link has been copied on 14473.88 kHz, SOUD Moscow, link id 90039, txm mode Crowd36 at 12.07 UTC.
- o Guy Denman heard on 10482 kHz at 08.45 UTC on link 80061 transmission to VNB. Digit '3' as last figure of last group in the header is being used all the time now.
He also copied at 09.10 UTC on 17474 kHz, link 10163. This one has not been reported for the past 6 months. This link was active in 1994/early '95 but had no fixed sked.

- o Edgar White writes that he noticed an odd thing:
11144 00139 80697 20152 00809
ZJAXH IQXTN HOXCQ ORDIN QEGLE XGAUE RZJSY MJMAH THLDP RYKES
<clip clip clip>
EDJTH LDNSR WCGOY MUSKH SKCGG YMXNC ISBBJ QYRRQ IPOWW

11177 00139 26760 19150 00809
ZJAXH IQXTN HOXCQ ORDIN QEGLE XGAUE RZJSY MJMAH THLDP RYKES
<clip clip clip>
EDJTH LDNSR WCGOY MUSKH SKCGG YMXNC ISBBJ WGQLR IPOWW

'Message 19150 was first sent to WNY on 19 Dec., then both appeared together on 20 Dec. and message 20152 was re-sent on 21 Dec. Groups 1/77 of both messages are identical, which would seem to indicate that these contain the real cipher text, which would agree with the encoded count contained in group 79. I wonder then if both group 78 and pmb1 group 3 are used to derive the cipher key ?'

It is possible Edgar. Except for the date and cypher group 3 nothing else changed, so I guess group 78 has either a connection with group 3, the date or both.

- o Stan Scalsky noted a new sked for the txm to KAC: 2030-2100 UTC
- o SOUD update. Guy Denman sent me the current sked for the fixed links.

Freq	UTC	callsign to	link	in contact with	last heard
-----	----	-----	-----	-----	-----

5775	1525	WQL	80061	VNB 6862	27 March
6862	1525	VNB	80061	WQL 5775	27 March
6798	1840	KUL	00142	Broadcast	23 April
8059	1755	RVC47	20087	RBP71 9237	26 March
9237	1755	RBP71	20087	RVC47 8059	26 March
10287	1730	JSC	00190	?	23 April
10482	0845	VNB	80061	WQL 13423	19 April
10482	1525	VNB	80061	?	24 April
10582	1420	KUL	00142	Broadcast Rpt of 12193	24 April
10767	1425	BFR	00030	?	22 April
12193	1410	KUL	00142	Broadcast Rptd on 10582	24 April
13880	0710	RAU	00070	Broadcast	2 May
13506	0910	UXW	40034	?	19 April
13423	0845	WQL	80061	VNB 10482	19 April
14364	1340	?	20087		April
14980	1410	RAU	00070	Broadcast	21 March
15735	1730	FQX	60003	?	23 April
16273	1410	?	00098		April
16305	0930	UGO	50079	?	2 May
16320	0930	?	40078	?	3 May
18093	1420	?	60003		April
18422	1410	?	10024		April

One of our other monitors writes that the Moscow brotherhood station has been active all day long on 9 June on 13530 kHz in 50 bd, sending the following very strange 5 FG message over and over again (note the repetitions !)

```

11177 12311 23121 07342 01909
12341 23448 69876 87698 69876 88295 38743 20980 92809 02976
32670 27364 92836 09428 61208 74982 36498 32764 81276 01276
30986 40932 70987 32123 49817 26346 81287 65491 87364 81267
98721 75654 55656 12737 72727 72727 91918 63473 67867 76732
86723 87629 37677 32612 53498 71296 28756 18276 98716 87326
87269 76329 74698 76857 98670 27601 56701 57601 73648 15728
76591 87364 87265 96710 27630 12673 84769 28743 98127 59876
29458 63298 75698 27465 87326 49876 28376 81273 98615 62875
69867 87432 74328 78674 29867 32867 67867 86786 43286 43286
65467 68768 68763 34234 34238 68768 62342 48273 48768 23487
12936 98432 32432 86743 43286 43286 43286 43286 43286 43286
86743 86743 86743 39867 32867 86743 43286 43286 43243 86743
86741 86743 86743 86743 86743 86743 86743 86743 86743 43543
87543 98798 98754 98754 98754 98754 29867 67543 67986 86754
69876 87698 69876 87698 69876 87612 12341 34867 86798 63298
69867 43298 65656 56756 56123 32143 14321 32143 14321 32143
14321 32787 58765 76587 58765 76587 58765 76587 58756 76587
76654 75456 36543 54365 36543 54365 36543 54365 36543 54356
36543 54365 35643 54356 36543 64356 35643 54356 36543 33333

```

-o-o-o-o-o-o-o-o-o-o-

The 'Numbers & Oddities' column a.k.a. 'Spooks Newsletter' comes to you courtesy of the Worldwide Utility News club. This newsletter may NOT be utilized, partly or wholly, in any other media format without the written permission of the editor (ary@luna.nl). Any breach of this may result in action under international copyright legislation.

To become a WUN member, send e-mail to the WUN listserver at: majordomo@qth.net and in the BODY of the message type: "subscribe wun" (without the quotation marks).

Check out the WUN web site at: <http://www.wunclub.com>

-o-o-o-o-o-conet-o-o-o-o-

=====
April 1995
=====

(=- NUMBERS & ODDITIES -=)
editor: Ary Boender
ary@bitbike.iaf.nl
2:283/512.24

Hello everyone ! In this edition of N&O we have the first update to the 'Brotherhood' edition of the Newsletter and further an interesting story about the 'Russian Man' numbers stations that I mentioned in WUN #2. The manuscript was written by Mike Chace and it looks great. Thanks Mike !

The 'Brotherhood'

Thanks for the many compliments that you sent me for the Brotherhood special. I hope that the story made you tune in to these stations. I wonder if the Brotherhood also has a network in Australia. Has anyone in this part of the world heard stations like this ? Does anyone know where the stations in Europe and America's are located ? Please, tune in as often as you can and let me know the results. It would be nice if we could unwrap this mystery. As promised there will be updates to this article in my columns. Here is the first update to the European frequency list: Callsign NQX must be NXQ.

Frequency UTC Link Mode / remarks

16008 kHz, 9.17, 10163, F1B-75
12136 kHz, 15:32, 00149, F1B-100 'DZR' to "Master" backup channel
11460 kHz, 15:32, 00149, F1B-200 !! "Master" to 'DZR' (sked 15.30)

12174 kHz, 08.00, 00052, F1B-75 to NXQ

The 'pip'

The mystery pip on 3754.7 kHz appears to be a time signal station in Krashnodar.

Jean Michel Jarre

The music that is used by the 'Jarre' numbers station that I mentioned in WUN #2 is 'Magnetic Fields'. The station is still there on 6645 kHz and can be heard on Monday night at 19.00 UTC.

The Russian Man and English Man Numbers Stations

Mike Chace, Bath, UK
(mikec@praxis.co.uk)

1. Introduction

Often heard, seldom mentioned is probably the maxim for this station. This may have something to do with the fact that the station seems to have no discernible schedule. If you want to hear it, you will need some patience (and a bit of the usual luck) but I can be pretty confident in saying that you'll find either (or both) on the air at any time and on any day.

Both stations are believed to be part of the same general operation from within the CIS, sending to agents of the KGB and GRU (Naval Intelligence). I should also add that there are a number of CW stations and the so-called German Lady that carry the same message formats and one can only assume that these are part of the same operation as none of the agent numbers appear to overlap. There is also a "German Man" but I have only heard this once -- I would welcome any further reports of this variant in case my ears deceived me !

2. Characteristics

2.1. Message Formats

Both stations are unmistakable when you hear them. Broadcast quality AM transmitters appear to be used. In general, the signal strengths received are quite phenomenal at whatever frequency. Indeed, some of the signal strengths are so high that it has been possible on many occasions to unplug the antenna from the receiver and still hear the station with a massive signal ! Transmitters are usually switched on five to ten minutes before a transmission. If you hear a strong AM carrier that you haven't noticed before, stay on the frequency. The station often "tunes up" 5 to 10 minutes before transmission with a steady 1kHz tone for about 30 seconds and you'll often hear some short snatches of the voice calling the agent once or twice.

The frequencies used are always exactly on a kilohertz point. In other words, if you hear a strong carrier on 13445.5kHz, it's almost certainly not a Russian or English Man -- they would be on 13445 or 13446kHz exactly.

2.2. Voices

The stations use the same two types of synthesized voice for each language. I call them the "thin" and the "thick" voice. The thick voice is lower in pitch, slower in delivery and generally sounds very labored. In contrast, the thin voice has a higher pitch, slightly faster delivery and sounds quite feeble. Both voices speak the same digits but, as we shall see later, are always associated with particular formats of message.

2.3. Pronunciation

The numbers spoken by the English Man are unique and you'll know when you've found it -- three is spoken as "thlee" and eight as "ate" (as in the past tense). It's quite unmistakable. Both English and Russian machines also have the same characteristic delay after any zero (or "noll") that is spoken. Here are the numbers as they are heard phonetically:

No.	Russian	English
1	Adim	Won
2	Dva	Too
3	Tri	Thlee
4	Chedearia	Fore
5	Byad	Fife
6	Shin	Six
7	Shesht	Seven
8	Vojim	Ate
9	Devierd	Nine
0	Noll	Zero

3. Message Formats

There are a number of message formats that I have come across. Each is detailed below.

3.1. Format 1

This is always spoken by the thick voice whether in English or Russian.

123, 123, 123 -- for 5 minutes

Pause

Key, Key

Group count, Group count

5F groups, each repeated

Key, Key

Group count, Group count

00000

Null Messages (No traffic) is given as:
123, 123, 123, 00000 -- for 5 minutes

3.2. Format 2

This is always spoken by the thin voice whether in English or Russian.

123, 123, 123 (pause) 1 -- for 5 minutes

Pause

Key and Group count

Key and Group count

5F groups, no repeat

000

000

Null Messages (No traffic) is given as:

123, 123, 123, 000 -- for 5 minutes

3.3. Format 3

This message format is sent if there are two messages for the agent to be sent in the same transmission (rare). It is basically the same as format 2 and is again only spoken by the thin voice.

123, 123, 123 (pause) 2 -- for 5 minutes

Pause

Key and Group count (Message 1)

Key and Group count (Message 1)

5F groups, no repeat (Message 1)

123, 123, 123 (pause) 2 -- for 1 minute

Key and Group count (Message 2)

Key and Group count (Message 2)

5F groups, no repeat (Message 2)

000

000

3.4. Format 4

The Russian version of the station sends a format 2 (or 3) message where 6 ("shest") and 0 ("noll") both result in a slight delay before sending the next digit and there is a marked pause after each ten 5F groups have been sent. This variant appears to be associated with long messages.

3.5. Format 5 (Control Transmission)

There also appears to be a short message format, directed at agent 615 (or rarely, agent 455). In this format, there is only one 5F group sent to the agent at a time. I have only heard the Russian Man send this format. Because of the similarity with the Counting Stations "Control Transmissions" I also name this short message format in the same way. Its format is as follows:

615, 615, 615, 1st 5F Group, repeated (for 10 minutes)

615, 615, 615, 2nd 5F Group, repeated (for another 10 minutes)

The two groups sent are rather curious. They are both different each day,

do not appear to be used for more than a day and they both start and end with the same digit. Here are some recent examples:

Date (1994)	Group 1	Group 2
15th July	89903	81783
16th July	71784	73804
18th July	63026	65506
19th July	80740	82140
20th July	60191	62021
21st July	99905	91355
22nd July	88873	80193
23rd July	48907	40577

My theory is that these groups are a code to the frequencies to be used during each day. I've attempted to find the key many times but have yet to succeed ! At the time of writing, this transmission can be heard daily at 08.00 UTC on 14890 kHz and on 11270 kHz at 08.20 UTC. The most bizarre example of this control transmission was heard on Sunday, 24th July 1994. Lasting nearly four hours in total, the Russian Man sent 615 three times, followed 22222 or 11111 once and then a 5F group. There then followed a 10-15 minute break before a new set of groups was sent repeatedly for 10 minutes. The message on that day was as follows:

Group 1	Group 2
72144	none
22222	71154
11111	72864
11111	73464
22222	74964
22222	72094
11111	72464
22222	72764
22222	72954
22222	71944
22222	72184
11111	72604
22222	72544
11111	00000

4. Message Content

Messages appear to contain random 5 figure groups although there are frequent occurrences of messages which possess many double digit groups eg 10233, 43305, 44553 and even more strangely, never have certain digits at all! As an example, the Russian Man sent an 81 group message to agent 258 on the 25th of June 1994. Not one single 5 figure group contained either an 8 or a 9. This is very odd and certainly indicates some non-random behavior (anyone with any clues please let us know).

5. Agents

The list of agents heard so far is extensive and indicates a wide-scale operation -- (5 Zeroes or 6 Zeroes indicates whether the agent receives Format 1 or Format 2/3 messages):

Russian Agent	Zeroes	English Agent	Zeros
021	?	139	6
031	?	182-1	?
087-1	6	192	?
102	?	235	5
127	5	261	5
139	5	309	?
147	6	342-1	6
176	5	395	5
191-1	6	475	?
236	5	501	5
258	5 & 6	541	?
275	5 & 6	562	5
423	6	572	5
452	5	597	5
455	?	729	5 & 6
456	6	746	6
467	5 & 6	785-1	?
519	6	821	5
571	6	838	5
573	5	854	?
583	5	897	?
585-1	6	921	6
615	Control	934	?
684	?	947	5
697	5	982	5
724	5 & 6		
738	5		
748-1	6		
758	5		
798-1	?		
824-1	?		
828-1	6		
841-1	6		
846	5		
891-1	?		
991-1	?		

6. The Transmission Schedule

I have to admit that after over two years of intensive monitoring of the stations, I have yet to discern a schedule for either. Transmissions can begin at any five minute interval but most tend to start on the hour with

a fair percentage of the rest starting at ten, twenty, forty, or fifty minutes past the hour.

There also seems no pattern to the frequencies used. I have found the station as low as 4400kHz and as high as 16300kHz. One particularly fruitful area however is the range 12100kHz to 12250kHz. About 10% of transmissions seem to occur in this portion of the spectrum but I don't know why! Perhaps it's just a place where propagation tends to be optimum for the distances required.

To find the Russian or English Man, I have a set of frequencies that I sweep through every hour, on the hour, when I'm listening. With practice, you will find that such a sweep can be done within the 5 minutes taken by the station to send its preamble. I also find it useful to search these frequencies at a more leisurely pace ten to fifteen minutes before the hour, listening for the tell tale strong, wide AM carrier signal.

During Winter evenings (1700-0000UTC) or early mornings, Summer or Winter (0000-0800UTC), I search:

4400-4750, 5000-5850, 6500-7000, 7500-8200, 9000-9350, 10100-11300kHz, 12100-12250kHz.

During Summer evenings (to 2200UTC) or daytime, Winter or Summer, I search: 7500-8200, 9000-9350, 10100-11300, 12100-12250kHz, 13300-13600, 14350-15000, 15800-16300kHz.

The station follows the usual practice of following the daily and annual variations in propagation. This means that frequencies in the daytime are higher than those in the evening and Summer frequencies are generally higher than those in the Winter.

6.1. Repeat Transmissions

Repeats of messages (same time, same frequency) can often, but not always, be found at weekly or daily intervals. Hourly or twenty minute interval repeats are nearly always on a different frequency. A message is generally repeated on a lower frequency. I have heard messages repeated up to five times over a two day period.

6.2 Concurrent Operation

The station has at least three transmitters. Also, at any one time one, two or three can be in operation in any combination of languages. For example, the English (4474kHz) and Russian (5105kHz) stations were active on the 23rd Dec at 2200hrs.

6.3 Regular Transmissions

Despite the lack of any general schedule, each station has at least one regular, weekly transmission. The messages (most often null) are always directed to the same agent. At the time of writing these are:

English Man

Freq. (kHz)	Day	Time (UTC)	Agent	Season
8074	Monday	2010	947	Summer/Winter

10162	Wednesday	1910	947	Summer/Winter
8074	Wednesday	2010	947	Summer/Winter
6925	Friday	2200	572	Summer
5875	Friday	2300	572	Winter
14620	Sunday	1900	729	Summer
13572	Sunday	1900	729	Winter
13423	Sunday	1600	597	Summer
Russian Man				
10882	Friday	2000	758	Summer
14890	Daily	0800	615	Control
13420	Saturday	1700	258	Summer

The frequencies of these regular transmissions often vary by up to +/- 15kHz according to interference.

The stations appear to keep UTC time i.e. when the UK moves to Daylight Saving Time (British Summertime) the schedule remains the same.

The first of the English Man's regular transmissions has been the source of some interesting monitoring. Agent 947 receives very little traffic - practically all messages are null (947, 947, 947, 00000). In the past year there have been just two messages for poor old 947. The first occurred on Monday the 21st March 1994 when the message sent on this day consisted of 401 (yes! 401) 5 figure groups. The transmission lasted for nearly two hours. The most recent message occurred on the 27th of June 1994 when 251 groups were sent -- a transmission of nearly an hour's duration.

Any information about this station is welcome. You may address it directly to Mike or you may send it to me.

'till next month, Ary

=====
May 1995
=====

(=- NUMBERS & ODDITIES -=)
editor: Ary Boender
ary@bitbike.iaf.nl
2:283/512.24

Hi, not much to report this month. Don't hesitate to send me your Numbers and Oddities stuff. I will not mention your name when you don't want to be credited, so it is safe to send me your secrets :-)

Brotherhood update

One new link has been noted in April:

Callsign: RVV, Link-id: 20087, UTC: 14.20, Freq: 13.418 kHz.

The transmissions to VKX on 14605 kHz are now scheduled for 16.10 UTC.

Mossad

A couple of odd messages to VLB were noted on 17/5: VLB18L36T46 for hours and on 18/5: VLB18P14L36R52 for hours.

Nancy Adam Susan

The numbers station that uses the 1940's ARRL alphabet has been noted with an increased number of transmissions lately. Id's include 'Susan Adam Robert', 'Nancy Adam Susan', 'Mary Susan Adam' and 'Frank Young Susan'. It is a bit curious that every callsign includes the letter 'S -Susan-'

Frequencies: 4130, 5530, 5835, 11000, 14000 kHz. Times: all day on the hour, sometimes also on the half hour.

Navy Kaliningrad

Channelmarker 'P' has been noted on a new frequency: 4031 kHz

VDE still going strong

I heard this station back in '82 for the first time and it was reported by other dxers way before that time. I still haven't a clue about the identity of this station. This message was logged by Leif Dehio on 20-4-1995 at 09.45 UTC on 6813 kHz using CW.

VVV VVV DE VDE VDE VDE VVV VVV DE VDE VDE
= = 9T 9T 29 29 6 6 1115 1115 = =
76745 76745 56344 56344 34344 34344 12974 12974 5T345 5T345
54345 54345 12123 12123 98933 98933 45886 45886 32355 32355
65455 65455 23255 23255 87876 87876 34565 34565 4T4T7 4T4T7
78411 78411 21234 21234 32355 32355 87645 87645 29892 29892
65633 65633 34345 34345 54677 54677 65T1T 65T1T 53212 53212
76564 76564 54343 54343 25456 25456 12387 12387 +

MI6, the Lincolnshire Poacher

The British Secret Intelligence Service (SIS), better known as MI6 (originally Military Intelligence, dept.6), is reportedly responsible for the transmissions of the 'Lincolnshire Poacher' numbers station. The station can easily be identified because of its interval signal. Transmissions start at the hour on three parallel frequencies with a part of the medieval English folk song 'Lincolnshire Poacher'. This is repeated twelve times followed by a five digit identifier number. The actual message begins after a couple of chimes and consists of 5-figure groups. At the end of the transmission there

are again a couple of chimes and the interval signal is played six times. The id-numbers are not unique, I have seen the same numbers being used during the past months. I haven't found a pattern yet. Maybe they are in fact agents numbers instead of message identifiers. The transmitter site is believed to be on the RAF base in Cyprus. The transmissions are always heavily jammed. On 12-5 I monitored the station during the afternoon and evening. This is the result:

1500 UTC, 11545 // 13375 // 12603 kHz, id 76728
1700 UTC, 11545 // 13375 // 12603 kHz, id 59922
1800 UTC, 6485 kHz, id 00283
1900 UTC, 6959 kHz, id 79891
2000 UTC, 6959 kHz, id 49589
2100 UTC, 6959 kHz, id 26225

The following sked has been noted: transmissions on the hour, times:

1000 - 1400 UTC, 15682 // 14487 // 16084 kHz
1500 - 1700 UTC, 11545 // 13375 // 12603 kHz
1800 - 2200 UTC, 6485, 6959, 7337, 9251, 10426 11545, 12603, 15610 kHz

Note: there are always three parallel frequencies.

Espionage book

Although it is in the shops for about a year, I found it only a couple of weeks ago, the 'Guinness Book of Espionage' by Mark Lloyd. It is an informative book and a pleasant one to read. It contains items about spies and their methods, communication, equipment, incidents, several intelligence agencies like KGB, CIA, MI5, MI6 and Mossad. In 256 pages the writer leads you through the fascinating world of espionage. I think that many of the numbers monitors will like this book. The price is GBP 14,99 in England. ISBN 0-85112-591-3.

Right, that's it for now. Don't forget to write ! See ya next month.

=====
June 1995
=====

(=- NUMBERS & ODDITIES -=)
editor: Ary Boender
ary@bitbike.iaf.nl
2:283/512.24

Hi folks, I have some nice stuff for you this month. Check it out !

'Brotherhood' update

A new sked for KKK (to KUA) can be found on 10850 kHz at 19.04 UTC.

In our WUN-special about the Brotherhood, I told you that it most probably is a diplo-related network. Just recently some new and very interesting info came in. It seems that it is more than just diplo-related. According to usually well informed sources, this network belongs to an organization called SOUD.

This organization was founded in 1977 by the Communist block and is basically an intelligence agency, accessible by all members of the former and still active communist block. The job of this organization is to gather information on everyone and everything - including their own and foreign embassy personnel. They are said to be based either on the premises of the Russian embassies and/or in separate installations. The organization's central computer is located in Moscow, and queries from members, regarding any subject are said to be handled in less than 4 hours time.

This theory makes sense, because it would explain:

- the use of Baudot telegraphy as some of the members don't have the money to get hold of sophisticated equipment and with so many nations involved it is of course a question of standardization!
- the almost worldwide appearance of this net
- the question "ruskih registrow ok ?" which is rather puzzling if this were to be a solely Russian net (see WUN#3).
- the use of non Russian words ("bereit", "Si")

Ok, who are they ? Little is known of the ultra secret intelligence organization SOUD "Soglashenije o Sisteme Objedinennowo Utschotja Dannych o protiwne" which is Russian for "System for mutual gathering of info about the enemy". This organization was founded in 1977 and was meant to serve as an electronic information gathering association between the intelligence agencies of the socialist camps. The members of SOUD were the Soviet Union, Bulgaria, Hungary, Poland, Czechoslovakia, Mongolia, Cuba and ofcourse Eastern Germany. They were later joined by Vietnam.

The immediate cause for the foundation of SOUD were the 1980 Olympics in Moscow. To safe guard the USSR from 'foreign hostile forces' during the Olympics, the main task for SOUD was to gather as much information about the 'enemy' as they possibly could and store this info as comprehensive as possible. Because the western countries boycotted the Olympics in Moscow, most of the 'enemies' didn't show up either. Nevertheless SOUD became an absolute hit in spy-land. Their success was so huge that they survived the end of the cold war and even the collapse of the communist block.

After the foundation in 1977, it took about 2 years before they became active. Besides the initiator, the KGB, no agency was as fanatical as the East German Stasi. SOUD still gathers information about all possible 'enemies' of the alliance which are stored in the main computer in Moscow and queries from members, regarding any subject are said to be handled in less than 4 hours time.

The SOUD databanks include names of agents, zionists, hostile religious

organizations and organizations of emigrants, journalists, diplomats, cultural and commercial attach s, representatives of airlines, etc etc. Information found in Stasi documents reveals that in 1989 more then 11100 names were collected. Most of them included a personal description, the maiden name of the mother and a sample of the handwriting.

Mossad oddity and schedules

On 16-6, FTJ used an unusual suffix: 9

Mike Chace sent me the latest schedule of the Mossad stations. The list was updated 'till 30-5-1995.

Frequency (kHz)	Callsign	Frequency (kHz)	Callsign
2270	JSR	6745	VLB
2515	CIO	6840	JSR, EZI
2628	FTJ	6912	OEM (occasional)
2743	ULX	7323	KPA
2957	SYN	7372	GBZ (occasional)
3150	PCD, ART	7446	KPA
3270	KPA	7540	JSR
3417	ART	7605	VLB, SYN, CIO
3640	VLB	7613	GPO (occasional)
3840	YHF	7760	ULX
4168	SYN	7866	SYN
4270	PCD	7918	YHF
4360	CIO	8127	CIO, MIW
4463	FTJ	8465	SYN, CIO
4560	YHF	8641	MIW
4665	VLB	9130	EZI
4780	KPA, ULX	9270	???
4880	ULX	9402	YHF (occasional)
5091	JSR	10125	CIO, KPA
5170	GBZ(occasional)	10352	VLB
5230	MIW, SYN,VLB, CIO	10648	YHF
5339	OEM (occasional)	10820	VLB, SYN
5437	ART	10970	MIW
5531	BAY (occasional)	11565	EZI
5560	YHF	12747	SYN
5629	SYN, CIO	12950	MIW
5715	ZWL (occasional)	13533	EZI
5820	YHF	13921	CIO
5911	OEM (occasional)	14750	CIO, MIW
6270	ULX	15980	EZI
6370	MIW	17410	EZI
6500	PCD	19715	EZI

6745

CIO

20740

SYN

Nancy Adam Susan

A new frequency has been noted for this station: 11170 kHz. After I wrote last month's column, several new callsigns were brought to my attention: Baker Edward Charlie, William Susan Susan and Mary Union Adam. Callsign FYS that I mentioned last month is actually FYP Frank Young Peter. The FYP, BEC and MUA callsigns contradict my earlier note that all callsign include the letter 'S'. Recent DF results pinpoint this station in either Krete or Egypt (Cairo).

Various N&O stuff

The 'Russian Man' numbers station has been heard on 6840 kHz at 22.15 UTC with a message to '507' and on 14860 kHz at 08.10 UTC with a message to '139'.

Channelmarker 'R' is now also on 3194.9 kHz

The 'Russian Counting Man' is back on 4633 kHz with endless loop tapes with 10-counts and an unreadable callsign. The station is best heard in the evening (1900-2100 UTC).

The '3-note oddity' station can be found on 4647 kHz where it transmits at 19.00 UTC on a daily basis. This station's id is a 3-note rising scale 'melody'. The messages are 5F groups in AM.

The CW version of the 'Swedish Rhapsody' station was heard at 19.00 UTC on 5340 kHz with 5F groups after series of 'LOLO'.

Mark Fine sent me these Spanish numbers loggings. As I have only little info about the Spanish stations I am very interested in everything you guys can provide.

6840.00 kHz 0230s 11 Jun 95 AM 43343 Spanish Numbers - 4F/w
//9958.00.
9222.07 kHz 0104t 13 Jun 95 AM 43444 Spanish Numbers - 5F/w
Calling "335", counting. Tones @0109, then "Grupo 82"
and 5F cuts. Repeated @0116, "Fin" @0123.
9958.00 kHz 0236s 11 Jun 95 AM 32222 Spanish Numbers - 4F/w
See 6840.00. QRM from WRMI.
9958.00 kHz 0301s 11 Jun 95 AM 32222 Spanish Numbers - 4F/w
Calling 544. Into 4f cuts @ 0310.
11491.10 kHz 1836a 10 Jun 95 AM 43343 Spanish Numbers - 5F/w

That's all I have for you this month. Thanks to everyone who have sent me information. Keep it coming ! See ya next month. Bye, Ary.

=====
July 1995
=====

(=- NUMBERS & ODDITIES -=)
editor: Ary Boender
ary@bitbike.iaf.nl
2:283/512.24

Welcome to the 7th edition of 'Numbers & Oddities'. Since last month the 'Miscellaneous SSB' column from Mike ceased to exist and has merged with 'N&O'. From now on you can send me also 'normal' stuff that doesn't fit in any of the other columns.

Channelmarkers

I heard channelmarker 'F' from Gdansk on 4556 kHz. This is most probably a Polish navy frequency. It is also reported on 7039 kHz but I think that this is incorrect as I hear very clearly 'C' and 'S' on 7039 kHz. F (....) can easily be mistaken for C (-.-.)

'C' is now also on 16331.85 and 'S' on 16332 kHz. 'R' is DFed and appears to be in Ustinov (Izhevsk) in the eastern part of European Russia.

Mossad

CIO is now also on 8025 kHz. VLB is heard on 3417 // 6270 and FTJ on 4665 kHz.

There seems to be something wrong with the broadcasting equipment that the Mossad, the Israeli military and government stations are using. It was first heard in the second week of June and it's still there while I'm writing this on July 17th. During that period you could hear something that sounds like the ringing of a telephone and on top of that a sort of clicking sound. When the telephone sound appears, then you could hear all the Mossad transmissions that were on the air at that particular moment, all at the same time. On 10125 kHz, this whole thing sounded even weirder as there is a Moscow station 1 kHz away that produces a constant 'white noise' type of sound which is some sort of high tech digital mode. Maybe you can imagine how this sounded when it all blended. The most interesting frequency was 10125 kHz, but also on 8127 kHz something unusual has been heard. This Mossad frequency carries on USB Israel Defence Forces Radio (Galei Zahal). It was first thought that this was KOL Israel but it appears to be Galei Zahal's traffic information service which carries mostly music and id's as "Kol Ha-Galgalatz" ("Voice of Galgalatz"). News summaries are some-

times carried on the half hour with some news bulletins relayed from Kol Israel Israel's Network B on the hour. During the Galei Zahal broadcasts the same situation occur as on 10125 kHz. The same happened to a couple of RTTY stations who apparently transmit from the same site just like Galei Zahal. The transmitter site is near Tel Aviv. Maybe this is still going on when the Newsletter comes out. Try your luck on 10125 kHz.

MI6

Apart from the well known 'Lincolnshire Poacher' station, MI6 also operates another, less frequent heard, station. This station uses an interval signal that sounds like the old folksong 'Cherry Ripe' and is played on a flute. I heard them recently on 14469 kHz at 13.00 UTC. They have been noted on 17499 kHz at 12.00 UTC as well and at 13.00 UTC on 20474 and 23411 kHz. The station is known to Numbers-dxers as 'the Cherry Picker'

Nancy Adam Susan schedule

11.00, 18000 kHz, BEC
12.00, 17502 kHz, NAS
12.30, 11170 kHz, NSA
13.00, 11000 kHz, BEC
14.00, 14000 kHz, FYP
16.30, 6715 kHz, NAS
17.00, 14000 kHz, FYP
17.30, 5835 kHz, MSA
18.00, 5835 kHz, WSS
19.00, 4130 kHz, SAR
20.00, 5530 kHz, NAS
21.00, 4130 kHz, MSA / RSM

Brotherhood update

A new sked for messages to RAU can be found on 13880 kHz at 08.10 UTC. UXW has a fixed sked at 09.10 UTC on 14426 kHz with RLX in Moscow, the other end of the link is on 13506 kHz. The link id for both stations is 40034.

8BY / P8K

Recently number station '8BY' has been DFed and it appears that it is operating from France, somewhere near Paris. The user is unknown but there are rumors that it might be DGSE related. Frequencies: 7668, 10248, 12170, 14931 and 18302 kHz. Another station that is around for many years is 'P8K' which will be DFed during the next couple of weeks and I would not be surprised if this one comes from France as well.

The USAF numbers broadcasts, pt1.

They are there for many years; easy to catch and yet completely ignored by the majority of the dxers. A bit strange when you know that there are many numbers-dxers who spend years to figure out how the numbers stations work, who are looking for patterns and try to break the codes. Yet they ignore the EAMs and Foxtrot messages. Therefore I thought it would be nice to take a closer look to these messages. We'll kick off with the Foxtrot or 'Skyking' messages, which all of you probably have heard before. They can be heard on all GHFS frequencies.

Here's a sample: ''Skyking, Skyking, do not answer. Papa Tango Three. Time Three Five. Authentication Whiskey November. I say again; Skyking, Skyking, do not answer. Papa Tango Three. Time Three Five. Authentication Whiskey November. Croughton out.''

Perhaps the most common question asked by a new military ute monitor is the question "who is this SKYKING character, and why can't he answer?" These broadcasts to SKYKING are more commonly known as FOXTROT broadcasts. You can read about them in Larry Van Horn's Utility World column in the Dec 94 Monitoring Times (which includes a picture of a USAF FOXTROT broadcast pad). As with the EAMs, they are usually ignored when they are broadcast on the GHFS. Most of the information below is derived from posts on the Grove BBS. I thank the participants in the discussions on the BBS, in particular Jeff Haverlah who wrote the major part of this article.

What follows is not 'who' or 'what' these "SKYKING" broadcasts are, but rather how they seem to manifest themselves on HF, at least from a CONUS (= CONTinental USa) viewpoint.

The construction of a Foxtrot message is as follows: 'Skyking, Skyking, do not answer' is the normal callup text for Foxtrot messages. This is followed by a 'trigraph', 'timestamp' and 'authentication'.

Trigraph

All characters of English alphabet can be used. All numerals from 1 through 9, plus zero are used. There are all alpha-character trigraphs; combinations of alphanumeric trigraphs; and all numeric trigraphs. The trigraphs NEVER change during a FOXTROT cycle.

Timestamp

Two digits that represent the minutes-unit of time of the broadcast. The digits will change to reflect the time of broadcast by a specific station. Sometimes, the stations seem to fudge the timestamp (missing the minute-change.)

Authentication

Conventional Wisdom - the 'alpha''alpha' authentication does not change during the echo cycle. Common situation now - the 'authentication' does indeed change during the echo process. Yet, there are still instances where the 'authentication' does not change.

In multiple FOXTROT situations ("more to follow"), the 'authentications' are static across each message (each authentication is the same for each 3/2 DNA.) If the authentication changes in mid-rotation, it seems to change for each grouping in the cycle at the same point.

The Foxtrot messages appear to have the highest precedence of any transmission on the GHFS. Example of precedence:

- > All GHFS traffic will cease for an EAM transmission.
- > All GHFS traffic will cease for a FOXTROT transmission.
- > All EAM transmissions will immediately terminate for a FOXTROT bcst.

Other presumed FOXTROT broadcasts: 'YELLOWBLOOD' 3/2 DNAs heard on 6788, 11191, 11244 kHz. Presumed USN related; possibly USMC. But not sure. The station that broadcasts these transmissions never id's itself. The broadcast is sometimes echoed by at least one other station, again with no id given. These broadcasts sometimes indicate the use of a schedule. Example: +/- h+53 minutes in late 1994. Transmission pattern: 'YELLOWBLOOD, YELLOWBLOOD. Do not answer. Break "trigraph timestamp authentication."'

As mentioned above, these broadcasts have apparently been around on the U.S. HF military frequencies for decades. The transmission patterns and frequencies changed somewhat in 1992 and since 01 June 1992, they have manifested themselves on the GHFS as follows: (note: although the following is the result of many years of monitoring these messages, some of the info given is 'tentative'. Your comments or adjustments are highly appreciated -Ary-).

1. This is tentative: Take a world map and draw an arc beginning at Hawaii; through ELMENDORF; through THULE; through CROUGHTON; and ending at LAJES. The FOXTROT broadcasts heard from stations inside the arc seem to be different from those heard at or outside the arc; and, they do not seem to cross the arc.
 - A) Within the arc:
 - > For at least a few months after the 'change' in June 1992, the lead GHFS station would 'call' MCCLELLAN and ANDREWS and 'request you echo the following'; then broadcast the 'trigraph', 'timestamp' and 'authentication'.
 - > Maybe concurrently, or maybe after this brief period of time, the lead station (usually OFFUTT, but sometimes ANDREWS or MCCLELLAN following the old USAF SAC universe) would initiate a FOXTROT broadcast with a call to something that still sounds like DECENT (or maybe DESCENT??) with a 'request you echo the following.' The DECENT call appears to be a general call to all CONUS (less BAYONNE) and SOUTHCOM GHFS stations to 'echo' the FOXTROT broadcast. The SOUTHCOM station being ALBROOK - if it is not a SOUTHCOM activity, at least it is apparently for coverage of the southern U.S., Gulf of Mexico, Caribbean (Cuba area?), and who knows what else.
 - > Until around March 1995, the echo process seemed to flow from the

lead station (usually OFFUTT) to MCCLELLAN/ANDREWS; to MACDILL; finally to ALBROOK. Since March 1995, it seems to be catch as catch-can with ANDREWS sometimes coming up as trailing in the rotation.

- > Since around March 1995, there have been rare (but not uncommon) FOXTROT broadcasts that use a callsign that sounds like FAIRLY. These broadcasts also 'request you echo the following'; however, no echo is ever heard, at least here. A FOXTROT broadcast was heard recently from YOKOTA (very strong level here in post-sunrise local time) with a broadcast that seemed to be directed to something that sounded like FARLY - possibly accented FAIRLY?? Again, no echo heard.
- > Very recently OFFUTT was heard with a FOXTROT broadcast using the callsign ENLIST. Again, no echo was heard.
- > And sometimes OFFUTT and ANDREWS have been heard (during periods of good propagation) with a single FOXTROT broadcast, with no callsign; no request for echo; and, no echoing station following their broadcasts.

B) Outside the arc. Because of propagation, the following is also tentative:

- > Stations such as HICKAM, THULE, and CROUGHTON can be heard here at local night with FOXTROT broadcasts that do not seem to originate with a CONUS station; and which do not seem to be echoed by CONUS stations. Question: who initiates these ?
- > These stations at and outside the arc, when they are co-active with OFFUTT during an OFFUTT DECENT broadcast, seem to ignore (or not hear) the OFFUTT broadcasts, and do not take part in the FOXTROT broadcast rotation (if any).
- > When propagation is good (which is certainly not at this period of time) YOKOTA has been heard with what appear to be 'initiating' FOXTROT broadcasts. Are there others ?

C) Apparently the only stations not participating in any FOXTROT broadcast are BAYONNE, and ASCENSION.

2. The FOXTROT broadcasts are heard on all GHFS frequencies. Unlike the EAMs, the FOXTROT broadcasts are not heard on the old/new GIANT TALK frequencies since 01 June 1992.
3. Before the SAC 'standdown' these broadcasts were equated with something called a 'monitoring period.' After the 'standdown' they are equated with, well, what?? They can happen at any time, and do.

Next month we'll take a closer look at the EAMs. I'd like to thank Enigma, Mike Chace, BBC Monitoring Service, Leif Dehio, Jeff Haverlah, Larry van Horn and all the others who sent me their findings. Keep it coming ! 'till next month, Ary.

=====
august 1995
=====

(=- NUMBERS & ODDITIES -=)
editor: Ary Boender
ary@bitbike.iaf.nl
2:283/512.24

This month we're on the Magical Mystery Military Numbers Tour. I hope you will like it. Enjoy ! Oh, and don't forget me. Send me so much news and stuff that I have to hire someone to sort it out :-)

Various stuff

- > A very rapid 'R' was heard for one night only on 3833 // 3768 kHz on 2-8 all night long. This was probably the French Air Force testing the equipment because FDC (FAF Metz) has been heard on both frequencies for almost a week now.
- > Mossad also seems to use VFT systems for their transmissions.
- > The 'Brotherhood'/SOUD stations RLX & UXW were extremely busy during the London conference on Bosnia, RLX sent monster messages to UXW for over an hour, so perhaps UXW is the Russian embassy in London. A strange header was sent from UXW to RLX on 14426 kHz 21/07/95, 09:11 UTC: 11177 40034 68983 21587 00043. Note that the last group of the message does not correspond to the usual brotherhood substitution system.

'Beacon' mystery unwrapped

Most of you must have heard them, the 4-character callsigns that haunt the 2-5 MHz bands. Even with the current poor conditions lots of the stations have booming signals during the evenings in Western Europe. In a feature in the June '86 issue of Popular Communications they are called 'Commercial beacons'. After all these years I still do not get what the author meant by that. Anyway, they are everything but commercial. Just like the single letter channel markers, these stations are Eastern European military stations with Russia as the major participant of course.

The transmissions are loaded with Q-codes and often 5F groups are sent. The stations are using CW upto 30 wpm and the callsigns always consist of 4-character groups either 1 digit and 3 letters, 2 digits and 2 letters or 4 letters. Note: there are no combinations where 2-digits are next to each other except in the middle of the callsign (eg A12B, no 12AB or AB12). Here are a couple of typical lines. Each line comes from a different station:

VPV6 DE 3AYJ QRU? QSA3/4? OK?
CMMU DE 5E9S QTA QTX RPT
VVV DE 9AKO QRK3? QRU QSA? RPT
9Q9L DE DCNE. QSA2/3 QRQ16 QRK4 QRU? QRU QLW QRU?
Q6VH DE HK1M QAP?

OVQC DE PRJJ QLW QSA2/3 QRK QRU NIL
MDBS DE QPYA OK QTC 149 QRQ14 RPT AA?
3PIQ DE 3INP QSA?
Z6GO DE T07R (followed by 5F groups) QJG QRO QYT1 QRV
IGDK DE HK1M QYT6 QYT8 OK? QSX?

This one is a bit different from the rest of the stuff. These messages pop up every now and then on 4602.5 kHz. They are repeated 2 times.

XXX XXX ESUP ESUP 45530 26798 BATIST (heard on 4-7)

XXX XXX ESUP ESUP 06365 BARWINOK 570 (heard on 6-7)

These messages are transmitted by the Net Control Station (ESUP in this case) and begin always with 'XXX XXX'. The messages are probably staff messages like the USAF 'Skyking'. This is a Russian duplex network and you can find the other end on 4937.5 kHz.

For those who are not familiar with the Q-codes, here's the translation. I must say that there were a couple of new ones for me too !

Note: the meaning of these Q-codes differ sometimes from the same amateur or maritime Q-codes.

QAP = keep listening on ... kHz

QJG = revert to automatic relay

QLW = test transmission

QRKx = the intelligibility of your signals is x. Where x is 1.bad, 2.poor, 3.fair, 4.good, 5.excellent

QRO = increase transmitter power

QRQx = transmit with x words per minute.

QRU = I have nothing for you.

QRV = I am ready

QSAx = the strength of your signal is x. Where x is 1.barely readable, 2.weak, 3.fairly good, 4.good, 5.very good

QSX = I am listening to ... (callsign) on ... kHz

QTA = cancel message nr...

QTC = I have messages for you

QTX = stop with.... (depends on the code following QTX)

QYTx = reference to another transmission, where x marks the number of the transmission. On 4602.5 kHz, the highest number used is 8.

RPT AA = repeat all after

The most active frequency was 4602.5 / 4937.5 kHz during the past few months, followed by 4119, 3067 and 4058 kHz. I logged the following stations during April-July:

3067.0 kHz, NSNO, NT73, E68W, KR1K

4058.0 kHz, 3INP, 2M8V, 4B7C, Q8TC

4119.0 kHz, OTBA, VVYV, T07R, WLGL, 1J4W, AWVB, VA7I

4601.0 kHz, RGC7 (w/Z4C5 on 4602.5 _not the same network as 4937.5_)

4602.5 kHz, 3AYJ, GAGX, 8NLG, BASG, 9AKO, SVAK, ESUP, 5E9S, Z4C5,
CHLN, VDHN, MBJX, W6HA, HJSN, QPYA, HKMR, KOAT, CMMV,
HK1M, AEKN, 8MKR

4937.5 kHz (other end of 4602.5)

This frequency list is far from complete. It is based on the activity during the past 3 years. During that period activity has been noted on the following freqs: 2238, 2285, 2302, 2362, 2546, 2733, 2748, 2854, 2878, 3055, 3064, 3067, 3089, 3228, 3256, 3282, 3286, 3298, 3486, 3803, 3831, 3938, 4058, 4119.5, 4601, 4602.5, 4898.5, 4951.5, 5058, 5117, 5138, 5144, 5153, 5241, 10038, 13207 kHz.

Please note that not all 4-character stations on these frequencies belong to the Russians. The 4602.5 / 4937.5 link is Russian, while the Czech Army can be found on 5144 kHz, but there may be other Eastern European stations as well. As usual, the stations quite often change their frequencies, so you have to search for them but you'll find them soon enough. 4602.5 kHz seems to be deserted at the moment but judging from the past, they will return sooner or later.

Tip: when you see the 'XXX XXX' messages, then you have a very good chance that you caught a Russian station. These messages can also be helpfull to define the various groups of stations on these networks.

Timesignal stations ? Nope !

Another type of mystery station that is around for quite some time, is often wrongly indicated as a time signal station. In fact, this is not one single station but a network of stations belonging to the Russian forces. To the Russian Air Defense Forces to be more precise. This is a typical message that can be best described as a QRV message: 'BT990457??8?????'. The digit after the first two question marks is 8 on 3839 kHz but may be different on other frequencies. Each message starts with BT -...- followed by 99 and the time, being UTC+x. Then two question marks ?? ...--.. followed by a digit and again five question marks. Each message that starts with another combination than 99 is followed by a 'normal' message. The combination consists of 2 equal digits like 44, 66 etc. The messages have a length of 13 characters (including BT), the QRV messages count 16 characters. The time that is transmitted on these stations is not very precise, it is often 1 to 3 minutes off. The timestring can vary from station to station from UTC+3 to 6 or even up to +12 hours, depending on the geographical area that the station serves.

These stations have been heard on many frequencies. Here is the list: 2316, 2360, 3825, 3839, 4402, 5053, 5181, 5205, 5214.5, 5369.5, 6635,=20 6800, 7530, 8084 kHz. At the moment 3839 and 6635 kHz are quite active in the European evenings.

In the early 90's a similar station could be found on 5416 kHz. It transmitted in 50bd RTTY and sent the following QRV message:

VV99+1804+0+++++ The timestring was UTC+1. Just like the CW stations, this also was a military station. Probably belonging to the Russian forces in Eastern Germany or the East German forces.

The USAF numbers broadcasts, pt2.

I am sure that every person who regularly listens to GHFS stations have heard the character strings commonly known as EAMs (Emergency Action Messages). So, what's an EAM ? This definition of an EAM is taken from a USAF Manual: ''Joint Chiefs of Staff Emergency Action Messages contain key instructions or information from high level authority and have predetermined formats. Such messages are transmitted by various communications systems and normally carry FLASH precedence. They are vital messages of an extremely time-sensitive nature, and rapid processing is mandatory to obtain the fast reaction required by their content. Usage and handling procedures are of the highest classification and have been issued by the Joint Chiefs of Staff only to those who have a need to know.''

Sample EAM:

''Alpha Romeo Yankee Four One Tango standby. Alpha Romeo Yankee Four One Tango standby. Alpha Romeo Yankee Four One Tango standby, message follows. Alpha Romeo Yankee Four One Tango Bravo Two Charlie Delta Oscar Three Five Seven Lima Hotel Six Quebec Uniform India Juliet Mike Zulu Kilo Papa Foxtrot. Offutt out.''

The following information is a small subset of what has appeared on the Grove BBS since July 1994. It was compiled for this article by Jeff Haverlah. The information grew out of an attempt by Larry Van Horn and Jeff to discover what was common on the GHFS so that the 'uncommon' becomes noticeable. This is what Jeff writes:

As with most hobbyists, EAMs were something to hear but ignore. When I took the time to actually listen to these things, 'conventional wisdom' went by the wayside!

- 1) All EAMs consist of two parts - A 'preamble' that consists of 6 characters (a change from 5 characters at the June '92 demarcation); and the body of the string, which is read as a concatenation of the preamble and the following characters in the string.
- 2) The first two characters of any preamble are static (they do not=20 change) over a period of time. It's these two characters that help you denote the character-count type of EAM that you are hearing.
- 3) In counting the characters in an EAM string (including the preamble) you will find:
 - > The most common EAM consists of 26 characters, with a preamble whose first two characters remain static for a period of time that seems to vary from 26 days to as low as 8 days; and before Dec 94 seemed to stay static for an average of 2 weeks. (It's 'D5' now -Ary-).

- > Also very common is the EAM with the same static characters as the 26-count EAM, but consists of 20 characters.
- > From around the end of Nov 94 to maybe April 95, there was a rare EAM with the 26-character EAM's static characters that was 6 characters in length (an EAM that consisted of only it's preamble). When a 6-character EAM was heard, with rare exception, it would seem to be part of a 6/20/26 character EAM set over a 15 minute period. Around the time that the 6-character EAMs seemed to disappear from the GHFS, there appeared a new 'set' that seemed to consist of a grouping of 20/20/26 character EAMs over a 10 minute period. Here's an example:
 - 11244.0 2049z 03/03/95 OFFUTT with MAINSAIL.
 - 2049z QJ24AY 7NYEBR5F25PV54 (20 character)
 - 2054z QJ3WAX NSFKTXSTU7EB5P (20 character)
 - 2058z QJUCU4 2FS7EKHW7UK325UYAW3G (26 character)
- > In a marked change from the (6)/20/26 character set EAM universe, there are rare transmissions of what I call variable-character EAMs (but probably should call variable character-count EAMs.) These are EAMs whose character-counts can vary from maybe the low 20's to massive EAMs that can have multi-hundred character counts (the highest heard by me so far is a 500+ character EAM on 19 May 95). As with the 20/26 character-set EAM universe, these variable-count EAMs are denoted by the first two characters of the preamble, which seem to remain static for a period of time that seems to average 2 months, sometimes much less, sometimes much more. As heard by me in North America, there seem to be no more than 2 different static-character sets active at any one time in the variable character-count universe (as this is written, R3... and YY...). But, based on two loggings by Ary Boender, there may be a third set (M3...) that seemed to be co-active with the R3.. EAMs, at least as heard in Europe. (Unusual vs. usual, remember? Which leads to the question 'are there different character sets in use outside of CONUS')
- 4) The EAM itself is of interesting construction:
 - > The EAM character-set (since Jul 94, when the monitoring started) consists of 32 characters:
 - A) All 26 characters of the English alphabet.
 - B) Numerals 2, 3, 4, 5, 6, and 7 (six characters).
 - C) There are no zeros, ones, eights, or nines.
 - > In the variable character-count EAM universe, there are occasions when there are multi-character 'groupings' within the EAM that will repeat in the body of the EAM; and, sometimes maintain relative positions throughout the body as they repeat.
- 5) There can be distinctive transmission patterns in these things:
 - The EAMs heard on the GHFS are first heard on the NIGHTWATCH nets on the old GIANT TALK frequencies, plus sometimes still on USN freqs. Usually broadcast by a daily tactical callsigned station, who is the same station each day (sometimes with the same operators), just using a different callsign. The operator works in a very noisy environment - trigraphs, character strings, 'warble tones' can be

heard in the background. The operators also use very distinctive diction. Sometimes, the initiating station is NIGHTWATCH 01 itself. Within a few seconds, to a few minutes of this broadcast, the GHFS will lightup with a very powerful carrier, followed shortly by OFFUTT, ANDREWS, or MCCLELLAN with a call to MAINSAIL and start the GHFS rotation of the EAM. (There can be slight variations to this pattern.) Rarely, NIGHTWATCH 01 will pull a station such as MACDILL off to a published discrete frequency, where NIGHTWATCH 01 will dictate the EAM to the GHFS station 'for injection to AUTODIN.' Within seconds of completion, this EAM will be transmitted on the GHFS.

Usually, an EAM is broadcast once on the NIGHTWATCH net; once on the GHFS (by all stations except ALBROOK, BAYONNE, and ASCENSION); and that's it. Recently it's been noticed by Ary Boender and myself that CROUGHTON and ANDREWS will rebroadcast an EAM (sometimes at an apparent hourly schedule) hours after the initial GHFS cycle was completed. Also, during self-described exercises the NIGHTWATCH nets will repeat one or more EAMs constantly over varying periods of time but is not joined by the GHFS.

On somewhat rare occasion, an EAM can be transmitted 'for' a callsign or multiple callsigns, in which case the message starts something=20 like this: 'for Chewing Gum, for Chewing Gum' followed by the EAM.

- A) Almost always these 'For...' EAMs are 20 characters.
 - B) Very rarely, they can be variable count EAMs: EAMs 'for' theaters/commands, and something a few months ago for SOARHAWK.
 - C) The only 'for' callsigns that seem to be static in nature (besides the Theater/Command things) are EAMs 'for' REGION "alpha character" (heard: ALPHA; BRAVO; CHARLIE; DELTA); and variable character-count EAMs 'for' SOARHAWK.
 - D) They can happen at any time, but an apparent favorite time for these is between 1200z-1300z (1300z-1400z Standard time) on Tuesdays.
- 6) On the NIGHTWATCH nets, the EAMs are called 'traffic.' Usually, the most recent EAM is called 'current traffic.' Stations 'entering the net' that do not have 'current traffic' are immediately read the 'current traffic' after the authentication process is complete. I have heard only one instance on the net, at the end of a long exercise in March '95, where these things were called "Eee Aaa Emms".

I'd like to thank Jeff for this in depth EAM article, Carter Bennet and Larry van Horn for their input, Carter for the EAM checker and of course the NN guys who sent me some useful stuff as well. That's all for now folks. See ya next month, Ary

=====
September 1995
=====

NUMBERS & ODDITIES

editor: Ary Boender (ary@bitbike.iaf.nl 2:283/512.24)
Lobeliastraat 33B, 3202 HR Spijkenisse, the Netherlands

Hi folks, an error has crept into my EAM sample in last month's column. I included a 'one' in the sample message but after reading the whole story I'm sure you all know by now that there are NO 'ones' in EAM's. This month's special edition of N&O is about spy stations. Not the normal, average spy stations (YL with 5F groups) but the digital ones. C37A and 6XM8 were the cause of many discussions amongst dxers during the past few years. Several dxers -amongst them also WUNners- have been following these stations for years and one of them sent me the following very interesting manuscript:

Today I'd like to introduce you to a rather mysterious group of stations, that seem to have no connection but are all centered around one of the Israeli intelligence services (MOSSAD, LAKAM, AMAN or SHABACK).

Probably most of these stations are known to you already, but there seems to be a lot of uncertainty as to who is behind them, so it may be worthwhile taking a closer look at them.

The following calls appear to be involved in this multinational operation, although there are probably a few more which we haven't found out about yet: C37A, 6XM8, CJL, WJI, TFB, RSB1 (QRT?), CIF9, PTI2, CAM, M4W, RK2, KWO (QRT?)

'C37A' and '6XM8':

These two stations are the most active in the net. They have a daily sked, 7 days a week, which normally starts at 04:30 UTC and continues nonstop until 19:45 UTC (Mo.-Fr.) or until 15:30 UTC (Sat.& Sun.). Modes used are ARQ-E with 288 Bd and normal Baudot telegraphy with 100 Bd, which is used for operational procedures only. Traffic in ARQ-E is always encrypted, using a very effective combination of encryption and data compression.

'C37A' is located in Israel, not very far from Tel Aviv. This was checked out by locals in the outskirts of Tel Aviv (sig. rep. was 59+20dB and no fading on the signal during lousy conditions) and also confirmed with the help of professional grade DF-equipment.

'6XM8', the other end of the link, is located in Germany, probably not more than 100 Km from the city of Bonn. Although we have no proof, all the data gathered so far, hints at a station run by the German intelligence service (BND).

It is still unknown where exactly the station is located. Monitors in the Bonn area, living very close to the German MFA-building and

the Israeli embassy, gave the station a rather weak ground wave signal. This more or less rules out involvement by either of the two installations, which both have huge HF antennae on the roof. However various attempts were conducted to DF the station and each time Bonn appeared to be the source of the signal. The most likely transmitter site is the region northwest of Bonn, bordering with Belgium. This region is packed with military and other dubious installations, and the ideal place for such a low profile operation. We think the site may be located near the town of Monschau, in a place called Hoefen. The BND is known to have a very large monitoring installation in Hoefen.

Although it would appear strange to use a monitoring station for transmission purposes, the BND seems to do just that (eg. the now closed DEA47 in Husum), using the name "Bundesstelle für Fernmeldestatistik" as a cover.

The '6XM8' transmitter site seems to be used by the BND number stations (eg. "Kilo Whiskey"), as well as a couple of other ARQ-E outlets, running at 288, 192 and 96 Baud, always encrypted. Operational messages are sent in CW.

These German stations can be heard on the following frequencies:
13903 ARQ-E-96, 14950 ARQ-E-288, 15641 ARQ-E-288, 16327 ARQ-E-96,
16350 ARQ-E-288, 18768 ARQ-E-288, 18772 ARQ-E-288, 20950 ARQ-E-192

These links seem to be directed to other partner intelligence services of the German BND.

The messages sent by 'C37A' to Germany consist of encrypted English text or 5 LGs which are also encrypted using the online compression/encryption algorithm.

You can tell 'C37A' and '6XM8' apart by looking at the shift. The Israeli side uses 330-340 Hz on both ARQ-E and Baudot, whereas the German side uses a narrow 190 Hz. The Israelis transmit at 100.87 Bd and the Germans use exactly 100 Bd Baudot.

Here is the current 'C37A'/'6XM8' frequency list:

```
-----  
Frequency    Channel nr.    Callsign  Mode  
7569.50      (??)           C37A      ARQ-E-288/ITA-2 100.87  
9208.00      (53)           6XM8      ARQ-E-288/ITA-2 100  
10348.00     (54)           6XM8      ARQ-E-288/ITA-2 100  
10749.50     (??)           C37A      ARQ-E-288/ITA-2 100.87  
11434.50     (??)           C37A      ARQ-E-288/ITA-2 100.87  
12224.50     (??)           C37A      ARQ-E-288/ITA-2 100.87  
12276.00     (56)           6XM8      ARQ-E-288/ITA-2 100  
13073.50     (25)           C37A      ARQ-E-288/ITA-2 100.87  
13419.00     (57)           6XM8      ARQ-E-288/ITA-2 100  
14379.50 alternate during QRM C37A      ARQ-E-288/ITA-2 100.87
```

14386.50	alternate during QRM	C37A	ARQ-E-288/ITA-2	100.87
14390.50	(??)	C37A	ARQ-E-288/ITA-2	100.87
14398.00	alternate during QRM	C37A	ARQ-E-288/ITA-2	100.87
15688.00	(59)	6XM8	ARQ-E-288/ITA-2	100
16312.50	(28)	C37A	ARQ-E-288/ITA-2	100.87
16457.00	(60)	6XM8	ARQ-E-288/ITA-2	100
17387.00	(61)	6XM8	ARQ-E-288/ITA-2	100
17422.50	(??)	C37A	ARQ-E-288/ITA-2	100.87
17427.50	(??)	C37A	ARQ-E-288/ITA-2	100.87
17437.50	(??)	C37A	ARQ-E-288/ITA-2	100.87
18547.50	(??)	C37A	ARQ-E-288/ITA-2	100.87
18557.50	(??)	C37A	ARQ-E-288/ITA-2	100.87
18275.00	(62)	6XM8	ARQ-E-288/ITA-2	100
20465.50	(??)	C37A	ARQ-E-288/ITA-2	100.87

The following traffic from 'C37A' to '6XM8' shows that decisions are made on the Israeli side of the link: 12:55 UTC 12.May.95 13072.50 kHz. (C37A was having serious problems with encryption device/no synch. possible)

it is ok with me
no hard feelings
we will try again and if it wont work
i will a ask prommuission to qrx
ok///zar
ok ok ok

(--- THEN TO ARQ-E-288 BUT NO SYNCH WITH '6XM8'---)

(--- BACK TO BAUDOT---)

ok ok ok,
ok ok
but pls pls as as as
i have to get aprovel
ok ok ok, pls as
tk's tks tks
as 5 m

(--- PAUSING FOR A COUPLE OF MINUTES ---)

good news
we can close now
it was a pleasure working with you
ok ok
many thanks and regards
xxkk

i dont understand 88

(--- PAUSING FOR ABOUT 2 MINUTES ---)

ok
to you too
gb gb gb gb gb gb

(--- S. OFF ---)

The Israelis have problems with their equipment very often. In August the link was down for several weeks due to technical problems with the encryption device. They were back to normal on 23/08/1995.

'CJL' and 'WJI':

'CJL' is a station which is listed in many publications as the Cypriot MFA in Nicosia. The location may be right, however the user is again one of the Israeli intelligence services.

'WJI', the other end of the link is a station located in Italy, probably somewhere in the north-eastern part of the country. This was indicated by rough DF-analysis and propagation characteristics. The user is probably one of the Italian intelligence services.

There are normally 3 skeds per day, with limited weekend activity. From Monday to Friday you can hear both stations at 07:00, 11:30 and 15:00 UTC. Saturday normally has 1 or 2 skeds only.

The regular frequencies in use are 16339.50 kHz ('CJL') and 17526 kHz ('WJI'). Modes used are ARQ-E-96 with a 4 character rep. cycle and 100 Baud Baudot for the call-up procedure.

The following technical problems, operator errors, operator chatter, technical data and transmission characteristics gave away the real users of 'CJL' and 'WJI', thus definitely ruling out the MFA Nicosia theory:

- 'WJI' signed off with "ciao @@@@ shalom".
- 'CJL' uses Baudot with 100.87 and 340 Hz, whereas 'WJI' uses Baudot with exactly 100 Baud and 850 Hz shift. Like on the link from Israel to Germany, these characteristics show the use of different equipment, indicating a multinational operation.
- The past weeks 'CJL' transmissions often carried the audio of the MOSSAD-number-station transmitting on 17410 kHz.
- The date-time group used by 'WJI' is in Italian, the one used by 'CJL' is in English. Cypriot diplos would for sure not use Italian date time groups !
- 'CJL' was heard several times, accidentally transmitting in 3-channel VFT FEC-A-192, a mode used by several other Israeli intelligence outlets

The traffic sent on this link consists of 5 LGs, using the NATO encryption system called AROFLEX. Here is a sample of a message transmitted by 'CJL' to 'WJI'. You will notice that the first and the last group of the message are identical, and that groups 2/3/4/5/6 are identical as well.

k ok ga pls
i qru qru
int qtc
gb gb qru gb sk qso
qso will wrk
ok tks gb sk sk
sk sk

'M4W' and 'RK2' have a daily sked at 08:30 UTC, six days per week on 16129 and 16247 kHz. Messages are encrypted using 5 figure groups. As we haven't been able to catch the beginning of a message yet, we don't know what type of message headers are used. There is hardly any traffic on this link, the last message from the Israeli side to the Russian side was monitored in February 1995, yet still they have a daily sked. After a few minutes of operational chatter, the link is normally closed.

Frequency	Callsign	Mode
16129,00	M4W	F1B-75
16247,00	RK2	F1B-75
19559,00	M4W	F1B-75

The question remains why an Israeli intelligence service would have a daily sked with its Russian counterpart. One of our fellow WUNers suggested a joint Russian-Israeli effort to help control Russian organized crime among the Russian immigrants entering Israel - an explanantion which seems to make sense.

'RSB1', 'TFB', 'CAM', 'CIF9' and 'PTI2':

These are a bunch of stations using a 3 channel FEC-A-192 VFT system. 'RSB1' was very active but seems to have disappeared. 'CAM' and possibly 'TFB' seem to be identical with 'CJL'. 'CAM' has been heard on 16339.5 kHz at 07:52 in the morning and many times on 19243 kHz with crosstalk from the "MOSSAD-lady". Both 'CAM' and 'TFB' have been heard running the same 100.87 Baud Baudot system used by 'CJL' and certain operator characteristics are very similar to the ones seen on the 'CJL' circuit.

Traffic seen on these VFT-circuits consists of 5 LGs and a little chatter. The sign off is the typical "Israeli way" with "ar va ar va".

It is yet unclear unclear who and where the other end of the link is, but it may be another multinational operation, as operator chatter is always in English.

Here are a few text samples from the VFT-stations :

de

group of stations. If anybody can provide additional information on these or other similar stations, please feel free to post it to Ary. We are especially interested in any similar activity heard outside of Europe.

Thanks for your efforts OM. Good stuff ! Well, that's all for now folks, it's time to sign off. Please send me your findings, loggings and news. I am looking for people who can tell me more about the navigation signals between 1600-3000 kHz. I'd like to cover them in a future edition of the newsletter. Write me for more info. Bye ! -Ary-

=====
N&O #10
=====

Numbers & Oddities; the early days: February 1995-September 1995.

Although the following article was not published in the N&O column but as a "Numbers" item in the 'Digital Review' column, I just had to include it here because this is the rewritten and updated article about the FAPSI stations published in the WUN newsletter from June 1997.

Russian diplo/intelligence [SOUND update 20-6-1997]

We introduced you to the 'Brotherhood/SOUND' network via a special edition of the WUN newsletter in March 1995. Lots of updates have been published since that date -mostly new schedules and stations- and numerous logs have popped up with various id's, such as BROTHERHOOD, SOUND, DoSC and lately also SVR and FAPSI. As SOUND doesn't exist anymore, I think it is time for a major update. For those of you who are unfamiliar with this network, I suggest that you catch up with the story by reading WUN newsletters vol.1 nos.3 and 6 first. This update starts with a short who-is-who in Russian intelligence, followed by network specifics.

As you probably all know, the KGB does not exist anymore but most of its former directorates are still alive and kicking in one form or another. While KGB (Committee of State Security) and its military counterpart GRU controlled nearly the complete intelligence system in the old days, a number of the new agencies come now under various ministries. A large part of the state security tasks are now handled by the FSB (formerly FSK and successor to the KGB).

The Federal Agency for Government Communications and Information (FAPSI), comprised of the former KGB 8th Chief Directorate and 16th Directorate, controls the country's communications networks and runs most electronic intelligence functions in Russia. According to a decree dated April 3,

1995, FAPSI is empowered to monitor and register all electronic financial and securities transactions in Russia, and to monitor other electronic communications, including private Internet access.

The SVR is the foreign intelligence service who was known as CSR till December 1991 and became part of the Ministry of Security (MB) under the new name 'SVR'. MB was in existence from 1991 to 1993 and was the initial successor to the KGB. In December 1993, SVR became an independent agency. The SVR has offices in Russian embassies, consulates and trade establishments throughout the world.

The Russian Federal Security Service (FSB), responsible for internal Russian law and order AND counterintelligence activities. Originally the Federal Counterintelligence Service (FSK), the FSB was established in 1991 by president Boris Jeltsin as one of the successors to the KGB. The FSK was subordinate to the short-lived MB but became an independent agency in 1993 under the new name 'FSB'.

The Russian Presidential Security Service (PSB), formerly the 9th Chief Directorate of the KGB, was established as an independent government agency in December 1993. In addition to providing security for Russian top officials and the guards for the Kremlin, the PSB supervises top-level government communications, operates and protects underground command centers, maintains the special underground train system that connects key government facilities in the Moscow area, and protects other strategic facilities, and executive aircraft and special trains. Those trains are an interesting item for us as well as the Russian Civil Railway Authority is also on SW. Leadership communications are carried out from the trains when a Soviet/Russian leader travels by train. The train was popular by president Brezhnev, who never flew except when he absolutely had to and then only outside the borders - and always used these trains. The trains are mostly used for their strategic rocket forces, a lot of which is rail-mounted.

FAPSI is in fact the agency who is responsible for state communications and signals security. The agency was also one of the former KGB directorates, handling Federal communications and was responsible for the encryption of the government's messages; tasks they still carry out today. The agency operates a HF/satellite network, for both SIGINT purposes and transmission of government and intelligence traffic. Like the KGB in the old days, FAPSI works closely together with the GRU, Russia's military intelligence organization. They even share the SIGINT facilities around the world, lots of them located in embassies and consulates. In 1993 Russia closed a contract with Vietnam to ensure the continuing use of the SIGINT facilities in Cam Ranh Bay. In 1994 the Russians came to an agreement with the Latvian government, which gives them the right to use the SIGINT station in Skrunda till 1998. Russia's largest SIGINT facility abroad is the one in Lourdes (Cuba). Most of the RTTY and numbers

transmissions heard in North America originate from various transmitter sites in Cuba. There are also SIGINT/tx facilities in Nicaragua.

SOUND was an alliance of the intelligence agencies of the Communist block and its databases were accessible by all members of the former block. The members of SOUND were the Soviet Union, Bulgaria, Hungary, Poland, Czechoslovakia, Mongolia, Cuba, East Germany and Vietnam. After the collapse of the block also SOUND's days were numbered. One of the main computer centres was in East Germany, and after East and West Germany reunited, the Stasi archives were soon in the hands of the BND, the West German intelligence agency. Nevertheless, it is believed that SOUND stayed in business for at least a couple of years but now as a Russian enterprise, possibly with the help of a few friendly nations like Roumania, Vietnam and Cuba. As most of the traffic was between diplomatic establishments, the assumption was made that a major part of the traffic was now diplo traffic (a large portion probably always was, even in the early days!) In the spring of 1996, I was informed that SOUND was definitely out of business but no-one could tell me exactly who was now in control of the network. Although I haven't got a written statement from Boris in Moscow, it is safe to assume that most of the traffic nowadays is diplo material and SVR traffic, transmitted by FAPSI.

So, how shall we call the players on this net from now on? Although the major part of the traffic most probably originates from diplo sources and SVR, my personal vote goes to FAPSI as they are responsible for all comms from and to the embassies/consulates/MFA/SVR/FSB. GRU uses the same SIGINT facilities as FAPSI does, but seem to use mainly satellites for their communications.

I think we shouldn't use the other reported names anymore. Someone asked me once if the 'Brotherhood' was the same as the American 'White Supremacy' organization. The answer is a big -NO-. In the early days, when we didn't know who was using the net, we called them 'the Brotherhood', which was just our internal nickname for the net. Heck, I didn't even know there was another one :-)

Another name we should not use anymore is of course SOUND. Finally we've got 'DoSC', the Department of State Communications, but isn't that the same as FAPSI? It is of course up to you how you want to call this net in your logs. From now on, I will refer to them as FAPSI though. When it comes to the numbersstations transmitting from Cuba, I suggest we'll call them 'SVR'.

Right, that was a lot of intel talk. Because I received quite a lot of questions about the subject, I thought it would be a good thing to explain in a nutshell who KGB's successors are. Now then, I think it is wrong to put too much stress on the intelligence side of the network, so let's focus on the diplo traffic. 'Ok, but why switch to diplo and why is a new intelligence net like SOUND unlikely?', you may ask. Let's look at some of the facts so far.

- o All links begin or end either in Cuba or near Moscow, while the other side of the links are mostly diplomatic and trade establishments like embassies and consulates. Part of the traffic will consist of intel/military related nature but most of the traffic is -and probably always was- standard Russian embassy traffic! Since all messages basically look the same, it is however impossible to differentiate between diplo, intel or military related embassy traffic.
- o Most of the calls from the early days are still around. (UDZ21, KUA, RPO, EWZ42, JUA, WQL, etc....) meaning that we have still the same players on the net.
- o Some that seem to have disappeared have changed to another mode (CW --> Baudot --> Crowd36) like FQX and KUA
- o RCF no longer uses RCF as a call but is still around as a transmitter site, using a different call on each circuit.
- o The way of operating is very similar to other Eastern European DIPLO networks (like the Bulgarians, Yugoslav, Czech and Slovak).
- o All links end either in Cuba or in the vicinity of Moscow.
- o QSF messages during important Russian holidays. If this were to be a multinational intel operation, they probably wouldn't have taken these holidays so seriously. Even the Israeli<->German link works 365 days per week, ignoring the Jewish sabbath and other even more important events.
- o If you count all existing FAPSI links, you would probably end up having all the world collaborating with the Russian Intelligence to feed SOUD.
- o Good operator discipline - fine, not much different to the Bulgarians and the YUG DIPLO operators.
- o Rarely any chat traffic but when chat traffic, then always in Russian, using 3rd shift cyrillic. Wouldn't be so if it was an international operation.
- o Always 500 Hz shift! In other multinational operations, the operators never adjust the shift to hide their identity!
 Moscow RK2 500Hz <--> Tel Aviv M4W 340 Hz
 Warsaw SNG202 500Hz <--> Bucharest YPM69 400 Hz
 Rome WJI 850 Hz <--> Tel Aviv 340 Hz
 Germany 190 Hz <--> Tel Aviv 340 Hz
 etc.....
 Have you ever noticed a station belonging to the FAPSI net using a shift other than 500 Hz ?

- o Occasionally we caught long Russian chats, mentioning the diplomatic pouch and lots of personal stuff. Personal stuff like this would never be allowed on a net used purely for intel purposes.
- o If our network were to be intel only..... then where are the Russian diplos? Every Russian embassy has HF antennae but not every one seems to have SAT-equipment....
- o After the collapse of the Warsaw Pact an international intel net as SOUD should have reduced traffic, but it didn't! Links should have vanished, but they didn't, in fact we have as many as in the early days, if not more.
- o Circular traffic (KUL, VKX, RAU, ... traffic) can be noted on YUG, BUL, CZE, SVK diplo nets in a very similar manner. The only difference is, that our bunch encrypts all the time!
- o A typical DIPLO characteristic is the use of different modes, depending on the level of flexibility and security you want on a specific link. What modes can be noticed on FAPSI transmitter sites? Standard Baudot F1B-75/100/200 + CROWD36 (on- and offline encrypted) + IRA-ARQ on the Moscow - Cuba link and to some extent 12-channel PSK traffic alternating with online encrypted Crowd36. It seems that links to the very important embassies are being established using online encrypted Crowd36.

This wide variety of modes is not unusual and can be seen on many other diplo nets as well.

Yugoslavia: FEC-A-144 + F1B-75
 Czech Rep.: IRA-ARQ + F1B-100 + High speed QPSK
 Hungary : HNG-FEC + DUP-ARQ
 Norway : SITOR-A + TWINPLEX + DUP-ARQ-2
 Turkey : RS-ARQ-228.65/240.81 + FEC-A-144
 India : VFT:FEC-A-96 + F1B-50 + PSK (tests?)
 Italy : ARQ-E-96 + SITOR-A + RS-ARQ + 1200bd PSK or FSK
 Germany : ARQ-E-96 + RS-ARQ-228.65/240.81/ + 2400bps PSK
 France : FEC-A-192/384 + TT2300B
 etc. etc. etc.

*** NETWORK SPECIFICS - MODES, FREQS, LINK ID's AND CALLSIGNS ***

Modes:

Crowd36 40/10 bd 32 tones (+ selcall system)
 12-channel PSK
 IRA-ARQ 110.2 bd / 500 Hz shift
 IRA-ARQ 300.5 bd / 500 Hz shift

Baudot 50 bd / 500 Hz shift
Baudot 75 bd / 500 Hz shift
Baudot 100 bd / 500 Hz shift
Baudot 200 bd / 500 Hz shift
Mazielka 6-tone selcall system

4-letter combinations have been noted on the Crowd36 links. These sequences most probably are used to trigger the computers on the receiving side. The following sequences were copied: VDAA, VDAG, VDBA, VDBE, VDCB, VDCE, VDCF, VDEA, VDFB, VDGB. So far they have been noted when...

- a) changing from 40Bd to 10Bd
- b) changing from 10Bd to 40Bd
- c) shutting down the link
- d) they are often sent in the middle of an ongoing transmission

Numbers transmissions and 'our' network.

One of the monitors sent me his very interesting findings as you can read hereafter. 14747 and 14787 kHz seem to be quite interesting places. Here are the relevant quotes from the reports:

.....the testing that has been taking place the least several months on 14747. The use of this frequency is strange. It's almost like it's programmed as a test freq. I have seen tests of virtually every mode and service on this freq in the last few months.
This morning at 1550Z (12-12-'96) I tuned to this freq and heard the mark tone but I thought I heard voice on it. I switched to AM mode and, to my surprise, there was a mechanical male voice counting in English like so: one, one, one, one, one, two, two, two, two, two, three, three, three, three, three four, four, four, four, four on up through nine. Then instead of zero, a word that very distinctly sounded like "VEEL" pronounced like the English word "veal" (as in the meat) and rhyming with the word "reel". There was much clicking, buzzing and occasional distortion - like the operator was adjusting the audio output of the numbers generator. There were frequent long pauses interspersed with number combinations like one, one, or four, five, and frequently "veel, one; veel one" After a while it settled down to repeated counts of "one, two, three, one, two three" This went on for another 5 minutes or so. And then came Spanish numbers. Pretty much the same routine, but now a male in Spanish: "uno, dos, tres, quatro" and so on up to "cero." Sometimes just long counts of "uno, uno, uno, uno, uno" Now interestingly enough, the Spanish numbers stop and I hear a female voice repeating in English "five, two, nine; five two nine; five two nine. Then a series of clicks, clacks and a long period (maybe 20 minutes) of what sounds like heavy 60 Hz hum. Then back to male English repeating "one, two, three; one, two, three." And underneath the male voice I hear a female voice repeating the "five, two, nine" routine again and what sounds like audio feedback. The station abruptly goes down at

1659Z. Maybe they can't afford a dummy load, or didn't know they were actually on the air or just didn't care, but these guys were certainly adjusting their numbers transmissions' audio."

Another example: on Feb.7, 1997 a carrier came up on 14787 around 1515Z. Steady carrier for about 5 min. Then FSK vvvvv's. Then 75bd 464646464's. Then 100bd 4646464's followed by a carrier. The 300.05 bd data (I assume was IRA-ARQ). Then about 30 minutes of adjusting voice generation equipment again in both Spanish and English. Then on to CW "989 20" repeated then on to 20 group text with lots of 12345's in it (obviously test tfc). Then turns keyer speed up to about 45 WPM and more test CW. Finishes with 989 TTTTT (real typical ex-KGB style, right?). Finally goes down at 1807Z.

Several times recently, on 14787 after the carrier was on for a while, I heard some "noise" slightly off freq. On tuning exactly 1.75 KHz higher I found a digital signal with following characteristics: 292.75bd 185Hz shift ACF=10. The strange thing is this signal is directly "coupled" with the carrier on 14787. When the carrier on 14787 went down so did the digital 1.75 kHz higher. I don't think it is a mixing product. It's too strong (same signal strength as the carrier below) and very pure. I have heard this on three different occasions now, and always only after the carrier comes up on 14787 for a few minutes first. Almost like the carrier is a "pilot" signal.....

Frequencies / call signs / link id's

The following list contains actual monitoring results of the past two years. First however a list of call signs / links that haven't been reported during the past few years. They may pop up one of these days; you'll never know.....

80031, ACD, BLA, BNV, BXL, CMU, DMA, DPL, DSG, EWZ 40, FJN, FRU, GLK, KDN, LSG, NDO, NMZ, OBX, OTD, OWR, PSN, PTF, RCF, RCX 81, RFA, RKG, RKM, RMM, RQO, RSS, RXX, RZJ, SCJ, TRP, UDZ 27, WKL, WNK

Most transmissions come from either Moscow or Cuba. Only a few other locations are known.

Note: station RCF (Moscow) still exists but uses nowadays other call signs; a different one on each link.

Managua	= WFO (link with MIG - Cuba)
Cuba	= MIG (link with WFO - Managua)
Cuba	= COY 851 (link with YFC)
Mexico City	= GMN (not confirmed)
Baghdad	= KUA (not confirmed; link with KKK - Moscow)
London	= UXW (not confirmed; link with RLX - Moscow)
Moscow	= RCF (now inactive)

Moscow = VNB (link with WQL)
 Moscow = RVV (link with DZR)
 Moscow = WCD (link with LKF)
 Moscow = KKK (link with UXW - London)
 Moscow = RLX (link with KUA - Baghdad)
 Moscow = RGA (link with BFR)
 Moscow = RBP 71 (link with RVC 47)
 Moscow = RK2 (link with M4W - Mossad)
 Moscow = JSC (link with POU -not 100% certain-)

Other transmissions from Moscow were to CAZ, DKR, EWZ 42, FQX, GOD, JUA, KRN, KUL, NOB, NQX, RAD, RAU, RJA, RKD, RPO, RSZ, Udz 21, UGO, VKX, VTX; all unid locations.

Note: JSC and POU were both copied on link 00190. It is however not clear whether POU replaced JSC or that JSC and POU are both ends of this link.

Other transmissions from Cuba were to BAR, BPA, HZW, JMS, KAC, NDO, PSN, SPK, WNY, YBU; all unid locations.

Frequency	Station	ITU	Callsign	To	Link	UTC
-----	-----	---	-----	-----	-----	-----
4491.00	Moscow	RUS				12.00
4616.00	Moscow	RUS				1.00
4873.00	Moscow	RUS		KUL	00142	18.50
4880.00	Moscow	RUS		KUL	00142	18.52
5070.00	Moscow	RUS			70026	17.54
5426.00	Moscow	RUS				1.00
5433.00	Moscow	RUS	VNB	WQL	80061	15.33
5438.00	Unid	???				17.24
5753.00	Moscow	RUS		DKR	70060	19.00
5775.00	Moscow	RUS	VNB	WQL	80061	16.10
6798.00	Moscow	RUS		KUL	00142	19.15
6803.00	Moscow	RUS				1.00
6814.00	Moscow	RUS				1.00
6817.88	Moscow	RUS				1.00
6842.00	Moscow	RUS	VNB	WQL	80061	15.25
6872.00	Moscow	RUS				1.00
6903.00	Unid	RUS				1.00
7444.00	Moscow	RUS			70026	12.54
7520.00	Moscow	RUS	RVV	DZR	00149	16.35
7525.00	Moscow	RUS	RVV	DZR	00149	16.25
7560.00	Moscow	RUS			90223	18.35
7570.00	Moscow	RUS			90039	17.50
7635.00	Unid	RUS				1.00
7690.00	Unid	RUS				1.00
7692.00	Unid	???				16.35

7718.00	Moscow	RUS				3.00
7730.00	Moscow	RUS			60179	16.31
7810.00	Moscow	RUS	WCD	LKF	00031	8.12
7821.00	Moscow	RUS		DKR	70060	14.50
7823.00	Cuba Relay	CUB		JMS	00127	12.03
7823.00	Moscow	RUS		DKR	70060	16.50
7823.00	Moscow	RUS	WCD	LKF	00031	12.03
7826.00	Moscow	RUS		VTX	00098	20.14
7887.00	Unid	RUS				11.00
7920.00	Russian Emb London	G	UXW	RLX	40034	14.45
8008.00	Unid	RUS				1.00
8023.00	Unid	???	LKF	WCD	00031	14.02
8032.00	Unid	RUS				2.00
8059.00	Moscow	RUS	RBP 71	RVC 47	20087	17.55
8062.00	Moscow	RUS		RJA	90051	0.00
8067.00	Moscow	RUS			70026	12.43
8089.00	Unid	RUS				3.00
8091.00	Moscow	RUS				11.00
8110.00	Unid	RUS				1.00
8117.00	Moscow	RUS				17.40
8165.00	Moscow	RUS		KUL	00142	7.27
8165.00	Moscow	RUS		KUL	00142	13.55
8169.00	Moscow	RUS			60047	16.42
8179.00	Unid	RUS				1.00
9031.00	Unid	RUS				1.00
9075.00	Moscow	RUS		CAZ	50002	18.55
9088.00	Moscow	RUS		POU	00190	17.40
9118.00	Unid	RUS				3.00
9127.00	Moscow	RUS			30044	16.10
9132.00	Moscow	RUS		DKR	70060	19.01
9162.00	Moscow	RUS			20043	16.10
9169.00	Moscow	RUS			40007	17.35
9172.00	Moscow	RUS				12.00
9213.00	Cuba Relay	CUB		GMN	00119	0.45
9215.00	Moscow	RUS	VNB	WQL	80061	15.30
9237.00	Unid	???	RVC 47	RBP 71	20087	17.55
9244.00	Moscow	RUS	RGA	BFR	00030	15.02
9274.00	Moscow	RUS			0?016	17.15
9288.00	Moscow	RUS		NOB	70004	14.25
10125.00	Unid	???				13.50
10135.00	Moscow	RUS			60047	16.53
10140.00	Moscow	RUS		KUL	00142	13.55
10156.00	Moscow	RUS				3.00
10176.00	Unid	RUS				12.00
10178.00	Unid	RUS				10.00
10183.00	Moscow	RUS		VKX	00166	10.36
10196.00	Unid	???				10.00
10202.00	Unid	???				9.25

10218.00	Moscow	RUS	JUA	50035	15.57
10222.00	Russian Emb London	G UWX	RLX	40034	18.43
10244.00	Unid	???			14.45
10260.00	Moscow	RUS	JUA	50035	17.05
10287.00	Unid	???	JSC	00190	17.40
10327.00	Unid	RUS			10.00
10410.00	Moscow	RUS	KUL	00142	7.15
10422.00	Cuba Relay	CUB	BPA	00116	15.26
10422.00	Cuba Relay	CUB	BAR	00135	15.24
10425.00	Moscow	RUS			2.00
10426.00	Unid	???			15.06
10426.00	Unid	???	WQL VNB	80061	13.08
10427.00	Moscow	RUS			2.00
10453.00	Moscow	RUS	DKR	70060	15.12
10453.00	Moscow	RUS			17.35
10482.00	Moscow	RUS	RJA	90051	18.18
10482.00	Moscow	RUS VNB	WQL	80061	12.30
10482.00	Unid	???	WQL VNB	80061	8.45
10485.00	Unid	???	WQL VNB	80061	16.15
10519.00	Unid	RUS			10.00
10582.00	Moscow	RUS	KUL	00142	14.20
10584.00	Moscow	RUS	KUL	00142	14.19
10586.00	Moscow	RUS	KUL	00142	14.25
10588.00	Moscow	RUS			10.00
10594.00	Moscow	RUS			2.00
10625.00	Moscow	RUS			1.00
10627.00	Moscow	RUS			2.00
10650.00	Moscow	RUS	DKR	70060	16.15
10650.00	Moscow	RUS	NOB	70004	12.20
10650.00	Moscow	RUS	DKR	70060	8.40
10655.00	Moscow	RUS	NOB	70004	7.55
10658.00	Unid	RUS			2.00
10672.00	Moscow	RUS RVV	DZR	00149	16.25
10677.00	Moscow	RUS			1.00
10686.00	Moscow	RUS			12.25
10723.00	Moscow	RUS		00097	15.40
10735.00	Moscow	RUS	RJA	90051	15.32
10744.00	Moscow	RUS	NQX	00052	9.15
10748.00	Unid	???			8.08
10760.00	Unid	???		10075	15.05
10762.00	Unid	???			14.48
10767.00	Moscow	RUS RGA	BFR	00030	15.00
10767.00	Moscow	RUS RGA	BFR	00030	15.00
10767.00	Moscow	RUS RGA	BFR	00030	7.30
10767.00	Moscow	RUS RGA	BFR	00030	9.00
10817.00	Moscow	RUS		60069	15.40
10850.00	Moscow	RUS KKK	KUA	30022	19.04
10855.00	Unid	RUS			10.41

10865.00	Moscow	RUS				17.05
10912.00	Moscow	RUS	DKR	70060		8.55
10915.00	Moscow	RUS	RPO	80038		15.05
11024.00	Moscow	RUS	RPO	80038		14.32
11024.00	Moscow	RUS		30044		9.59
11024.00	Moscow	RUS		30088		14.20
11027.00	Moscow	RUS	NOB	70004		14.00
11051.00	Moscow	RUS	RGA BFR	00030		8.05
11051.00	Moscow	RUS				10.00
11060.00	Unid	RUS				2.00
11070.00	Moscow	RUS				2.00
11112.00	Moscow	RUS	RLX UXW	40034		16.25
11132.00	Moscow	RUS	VKX	00166		12.00
11143.00	Moscow	RUS				12.27
11402.00	Unid	RUS				15.56
11412.00	Moscow	RUS		60069		16.12
11413.00	Moscow	RUS		60069		15.36
11421.00	Moscow	RUS	RVV DZR	00149		15.27
11426.00	Unid	???	WQL VNB	80061		8.47
11428.00	Moscow	RUS	RVV DZR	00149		8.35
11433.00	Moscow	RUS	KKK KUA	30022		15.50
11434.00	Moscow	RUS		10042		18.25
11436.00	Moscow	RUS	RVV DZR	00149		15.40
11440.00	Russian Emb Baghdad	IRQ	KUA KKK	30022		11.31
11446.00	Moscow	RUS				10.00
11460.00	Unid	???	DZR RVV	00149		15.32
11468.00	Unid	???	DZR RVV	00149		14.26
11477.00	Moscow	RUS				14.40
11480.00	Moscow	RUS				12.00
11487.00	Moscow	RUS		30044		14.38
11502.00	Moscow	RUS				11.00
11507.00	Moscow	RUS	RPO	80038		15.05
11523.00	Cuba Relay	CUB	GMN	00119		0.45
11527.00	Moscow	RUS	VNB WQL	80061		10.50
11527.00	Moscow	RUS	VNB WQL	80061		15.40
11541.00	Moscow	RUS	JUA	50035		17.13
11562.00	Moscow	RUS	DKR	70060		6.23
11567.00	Moscow	RUS	VNB WQL	80061		13.08
12111.00	Moscow	RUS	NOB	70004		13.20
12111.00	Moscow	RUS	UDZ 21	20054		15.17
12112.00	Moscow	RUS	RBP 71 RVC 47	20087		15.43
12124.00	Moscow	RUS	VKX	00166		12.05
12128.00	Moscow	RUS		06019		10.15
12130.00	Moscow	RUS	VTX	00098		15.55
12132.00	Moscow	RUS	RVV DZR	00149		9.20
12134.00	Moscow	RUS	VTX	00098		15.35
12136.00	Unid	???	DZR RVV	00149		15.32
12137.00	Unid	???		00162		10.10

12139.00	Unid	???			15.53
12145.00	Moscow	RUS	VKX	00166	11.08
12146.00	Moscow	RUS		10042	11.43
12150.00	Moscow	RUS			12.00
12151.00	Unid	???			15.15
12152.00	Unid	???			17.17
12152.00	Moscow	RUS	DKR	70060	9.45
12155.00	Unid	???			8.03
12156.00	Moscow	RUS	RCF		14.54
12156.00	Moscow	RUS			7.54
12157.00	Moscow	RUS	RAD		9.18
12158.00	Moscow	RUS	DKR	70060	8.40
12160.00	Moscow	RUS			9.25
12167.00	Moscow	RUS	NOB	70004	12.50
12171.00	Moscow	RUS	NOB	70004	12.55
12173.00	Moscow	RUS			1.00
12173.00	Unid	RUS			2.00
12174.00	Moscow	RUS	NQX	00052	13.30
12177.00	Moscow	RUS	VKX	00166	11.10
12177.00	Moscow	RUS			2.00
12177.00	Moscow	RUS	NOB	70004	12.50
12178.00	Moscow	RUS	KUL	00142	14.10
12180.00	Moscow	RUS	VKX	00166	15.12
12180.00	Moscow	RUS	RAU	00070	14.28
12181.00	Moscow	RUS			1.00
12181.00	Moscow	RUS			2.00
12183.00	Moscow	RUS			10.00
12185.00	Cuba Relay	CUB	COY 851 YFC	00103	14.00
12193.00	Moscow	RUS	KUL	00142	14.15
12194.00	Moscow	RUS	NQX	00052	9.43
12195.00	Unid	???	GOD	00090	16.30
12196.00	Cuba Relay	CUB	MIG WFO	00125	19.57
12196.00	Cuba Relay	CUB	MIG WFO	00125	14.45
12197.00	Moscow	RUS	KUL	00142	14.12
12197.00	Moscow	RUS	NOB	70004	13.00
12198.00	Moscow	RUS	KUL	00142	14.10
12198.00	Unid	RUS			2.00
12202.00	Unid	RUS			10.00
12211.00	Moscow	RUS	RLX UXW	40034	9.26
12223.00	Moscow	RUS	UDZ 21	20054	17.30
12228.00	Moscow	RUS		70026	10.09
12239.00	Unid	???	BFR RGA	00030	15.05
12262.00	Unid	???			12.40
12332.00	Moscow	RUS		10042	14.36
13016.00	Cuba Relay	CUB	MIG WFO	00125	14.17
13384.00	Moscow	RUS		10042	8.22
13392.00	Moscow	RUS	VTX	00098	8.19
13393.00	Moscow	RUS	FQX	60003	15.56

13393.00	Cuba Relay	CUB		HZW	00117	20.00
13398.00	Moscow	RUS				10.00
13417.00	Moscow	RUS				11.00
13418.00	Moscow	RUS	RBP 71	RVC 47	20087	14.20
13420.00	Moscow	RUS				12.41
13422.00	Moscow	RUS	VNB	WQL	80061	10.20
13425.00	Moscow	RUS	VNB	WQL	80061	8.53
13429.00	Moscow	RUS	VNB	WQL	80061	10.29
13430.00	Moscow	RUS			00097	15.27
13443.00	Moscow	RUS				9.00
13450.00	Moscow	RUS	RGA	BFR	00030	8.00
13457.00	Moscow	RUS				13.19
13459.00	Unid	???				12.50
13460.00	Moscow	RUS	RGA	BFR	00030	15.43
13462.00	Moscow	RUS				6.42
13489.00	Unid	RUS				10.00
13503.00	Moscow	RUS	RLX	UXW	40034	10.00
13506.00	Moscow	RUS	RLX	UXW	40034	9.10
13507.00	Moscow	RUS	RLX	UXW	40034	9.20
13508.00	Moscow	RUS				7.00
13520.00	Unid	???				11.00
13530.00	Moscow	RUS			12311	8.00
13557.00	Unid	RUS				1.00
13584.00	Moscow	RUS				10.00
13835.00	Cuba Relay	CUB	COY 851	YFC	00103	13.39
13838.00	Cuba Relay	CUB	COY 851	YFC	00103	13.37
13850.00	Moscow	RUS		NQX	00052	13.30
13858.00	Moscow	RUS				11.22
13867.88	Moscow	RUS				12.32
13877.00	Moscow	RUS		RAU	00070	7.00
13880.00	Moscow	RUS		RAU	00070	8.10
13982.00	Moscow	RUS			60047	8.39
14363.00	Moscow	RUS		DKR	70060	8.38
14364.00	Unid	???	RVC 47	RBP 71	20087	13.41
14373.00	Cuba Relay	CUB		KAC	00128	20.55
14377.00	Moscow	RUS		DKR	70060	8.42
14377.00	Moscow	RUS		DKR	70060	8.19
14387.00	Moscow	RUS				1.00
14393.00	Moscow	RUS				10.00
14398.00	Unid	RUS				1.00
14401.00	Moscow	RUS				10.00
14402.00	Moscow	RUS				2.00
14402.00	Moscow	RUS				10.05
14408.00	Moscow	RUS	RGA	BFR	00030	9.45
14412.00	Moscow	RUS		FQX	60003	16.00
14416.00	Moscow	RUS				2.00
14417.00	Unid	???	YFC	COY 851	00103	13.30
14418.00	Unid	RUS				2.00

14419.00	Moscow	RUS				13.31
14420.88	Moscow	RUS				13.36
14421.00	Moscow	RUS				10.00
14427.00	Russian Emb London	G UXW	RLX	40034		9.27
14434.00	Moscow	RUS				14.55
14455.00	Moscow	RUS RVV	DZR	00149		15.36
14465.00	Unid	???	KRN	00178		17.43
14473.88	Moscow	RUS		90039		12.07
14474.00	Moscow	RUS		90039		12.07
14475.00	Moscow	RUS		60047		8.16
14496.00	Unid	???		20076		12.20
14506.00	Unid	RUS				6.00
14525.00	Unid	???		20076		12.25
14532.00	Moscow	RUS	UDZ 21	20054		15.00
14563.20	Unid	RUS				2.00
14577.00	Moscow	RUS	RPO	80038		14.59
14587.00	Moscow	RUS	RPO	80038		14.50
14589.00	Moscow	RUS	RPO	80038		14.37
14605.00	Moscow	RUS	VKX	00166		15.01
14605.00	Moscow	RUS	VKX	00166		16.10
14605.00	Moscow	RUS	VKX	00166		10.40
14608.00	Moscow	RUS	VKX	00166		15.00
14622.00	Moscow	RUS	VKX	00166		12.18
14622.00	Russian Emb Baghdad	IRQ KUA	KKK	30022		10.56
14624.00	Russian Emb Baghdad	IRQ KUA	KKK	30022		11.15
14625.00	Moscow	RUS	RSZ	00099		14.28
14630.00	Moscow	RUS				11.48
14632.00	Russian Emb Baghdad	IRQ KUA	KKK	30022		12.30
14638.00	Moscow	RUS		30011		10.55
14640.00	Moscow	RUS KKK	KUA	30022		15.12
14642.00	Unid	RUS				2.00
14642.00	Moscow	RUS		30011		10.50
14642.00	Moscow	RUS		10042		7.53
14643.00	Moscow	RUS KKK	KUA	30022		9.40
14648.00	Moscow	RUS		00198		11.30
14649.00	Moscow	RUS				9.00
14657.00	Moscow	RUS				7.50
14659.00	Unid	RUS				10.00
14660.00	Moscow	RUS		10042		9.15
14686.00	Moscow	RUS				1.00
14713.00	Unid	RUS				9.20
14713.00	Moscow	RUS				12.00
14724.50	Cuba Relay	CUB	BAR	00135		15.15
14726.00	Unid	RUS				10.00
14727.00	Cuba Relay	CUB	BPA	00116		18.00
14728.88	Unid	RUS				1.00
14736.00	Cuba Relay	CUB MIG	WFO	00125		14.18
14817.00	Moscow	RUS		43323		8.33

14820.00	Moscow	RUS			14.20
14820.00	Moscow	RUS	EWZ 42		15.55
14821.00	Moscow	RUS		40023	8.38
14822.00	Moscow	RUS		60069	16.21
14823.00	Unid	RUS			10.00
14823.00	Moscow	RUS			6.00
14823.00	Moscow	RUS			11.00
14824.00	Moscow	RUS			13.07
14830.00	Unid	??? BFR	RGA	00030	15.22
14830.00	Unid	??? BFR	RGA	00030	14.40
14832.00	Unid	???			16.05
14834.00	Moscow	RUS	RKD		16.10
14838.00	Unid	RUS			2.00
14842.00	Unid	RUS			15.10
14852.00	Moscow	RUS	VKX	00166	11.00
14854.00	Moscow	RUS			16.58
14854.00	Moscow	RUS	UDZ 21	20054	16.35
14863.00	Unid	RUS			11.53
14865.00	Moscow	RUS			2.00
14866.00	Moscow	RUS		60069	7.44
14869.00	Moscow	RUS			10.35
14870.00	Moscow	RUS			14.33
14870.00	Unid	RUS			2.00
14892.00	Unid	RUS			2.00
14894.00	Moscow	RUS			13.44
14900.00	Moscow	RUS			13.31
14917.00	Moscow	RUS	RJA	90051	9.57
14927.00	Moscow	RUS			7.28
14938.00	Moscow	RUS			10.34
14941.00	Cuba Relay	CUB	WNY	00139	18.00
14942.00	Moscow	RUS			1.00
14946.00	Moscow	RUS			9.26
14947.00	Moscow	RUS		30088	10.07
14950.00	Unid	RUS			14.30
14971.00	Moscow	RUS	RAU	00070	14.10
14973.00	Moscow	RUS	RAU	00070	14.12
14974.00	Moscow	RUS	RAU	00070	14.12
14977.00	Moscow	RUS	RAU	00070	14.12
14980.00	Moscow	RUS	RAU	00070	14.10
14985.00	Moscow	RUS	RAU	00070	14.10
14986.00	Moscow	RUS			14.15
15612.00	Moscow	RUS			1.00
15678.00	Moscow	RUS	NQX	00052	11.50
15678.00	Moscow	RUS	NQX	00052	12.44
15684.00	Moscow	RUS			10.00
15696.00	Moscow	RUS RGA	BFR	00030	11.50
15696.00	Moscow	RUS			14.50
15702.00	Moscow	RUS RGA	BFR	00030	10.48

15707.00	Moscow	RUS		60047	13.00
15708.00	Moscow	RUS	RGA BFR	00030	15.30
15710.00	Moscow	RUS	KKK KUA	30022	14.58
15712.00	Moscow	RUS			11.50
15722.00	Moscow	RUS	RGA BFR	00030	11.05
15724.00	Moscow	RUS	RPO	80038	8.29
15733.00	Moscow	RUS		30088	12.05
15735.00	Moscow	RUS	FQX	60003	17.30
15735.00	Moscow	RUS	FQX	60003	16.00
15771.00	Moscow	RUS	RSZ	00099	15.20
15826.00	Moscow	RUS	RLX UXW	40034	9.45
15826.00	Unid	???			9.30
15836.00	Moscow	RUS	RAD		12.53
15836.00	Moscow	RUS			12.05
15845.00	Moscow	RUS		07039	10.00
15845.00	Moscow	RUS			1.00
15879.00	Moscow	RUS		00198	11.32
15880.00	Moscow	RUS			12.50
15889.00	Cuba Relay	CUB	SPK	00168	16.00
16008.00	Moscow	RUS		10163	9.20
16018.00	Moscow	RUS		10163	12.33
16032.00	Moscow	RUS		30088	9.55
16054.00	Moscow	RUS	KKK KUA	30022	10.10
16054.00	Moscow	RUS	KKK KUA	30022	10.46
16064.00	Moscow	RUS	KKK KUA	30022	10.53
16066.00	Moscow	RUS		11230	9.43
16081.00	Moscow	RUS	VKX	00166	9.33
16108.00	Moscow	RUS			7.54
16108.00	Moscow	RUS	UDZ 21	20054	11.50
16108.00	Moscow	RUS	UDZ 21	20054	7.06
16116.00	Moscow	RUS		60047	10.50
16119.00	Unid	RUS			9.00
16120.00	Unid	???		40078	9.40
16121.00	Unid	RUS			2.00
16129.00	Mossad	ISR	M4W RK2		8.30
16145.00	Moscow	RUS			10.00
16153.00	Moscow	RUS	DKR	70060	8.35
16153.00	Moscow	RUS			2.00
16154.00	Moscow	RUS	DKR	70060	8.45
16154.88	Moscow	RUS			1.00
16155.00	Moscow	RUS			10.05
16165.00	Moscow	RUS			1.00
16168.00	Moscow	RUS		30044	15.20
16214.00	Moscow	RUS	FQX	60003	9.54
16214.00	Moscow	RUS		60015	10.25
16218.00	Cuba Relay	CUB	HZW	00117	20.00
16225.00	Cuba Relay	CUB	BPA	00116	14.45
16226.00	Cuba Relay	CUB	YBU	00148	14.00

16232.00	Moscow	RUS	FQX	60003	8.50
16242.00	Moscow	RUS	RSZ	00099	17.00
16242.00	Moscow	RUS RVV	DZR	00149	9.40
16242.00	Moscow	RUS			4.00
16244.00	Moscow	RUS	RJA	90051	8.33
16245.00	Moscow	RUS	VKX	00166	11.00
16247.00	Moscow	RUS RK2	M4W		8.29
16252.00	Moscow	RUS RVV	DZR	00149	11.47
16253.00	Moscow	RUS	RJA	90051	9.55
16254.00	Unid	???		20076	8.10
16255.00	Moscow	RUS	POU	00190	7.06
16257.00	Moscow	RUS	RJA	90051	8.37
16273.00	Moscow	RUS	VTX	00098	8.15
16277.00	Moscow	RUS		60069	11.15
16277.00	Moscow	RUS			11.19
16277.00	Moscow	RUS		80050	10.05
16285.00	Unid	???		00177	8.45
16285.00	Moscow	RUS	RSZ	00099	8.40
16294.00	Moscow	RUS		00029	11.12
16305.00	Unid	???	UGO	50079	9.30
16312.00	Unid	RUS			2.00
16320.00	Unid	???		40078	9.30
16324.00	Moscow	RUS KKK	KUA	30022	11.40
16332.00	Moscow	RUS		10042	8.55
16340.00	Moscow	RUS KKK	KUA	30022	14.10
16340.00	Moscow	RUS KKK	KUA	30022	11.15
16342.00	Moscow	RUS		10042	11.28
16344.00	Moscow	RUS KKK	KUA	30022	11.40
16446.00	Unid	???	KRN	00178	17.35
16446.00	Cuba Relay	CUB	WNY	00139	19.09
16841.00	Cuba Relay	CUB	JMS	00127	22.30
17402.00	Moscow	RUS		10042	8.08
17421.00	Moscow	RUS	JUA	50035	13.35
17422.00	Moscow	RUS		60047	8.25
17465.00	Moscow	RUS	RSZ	00099	10.44
17465.00	Moscow	RUS	RSZ	00099	13.45
17474.00	Unid	???		10163	9.10
17533.00	Moscow	RUS		30088	10.15
18092.00	Moscow	RUS	FQX	60003	8.42
18092.00	Moscow	RUS	FQX	60003	14.22
18183.00	Moscow	RUS			10.00
18185.00	Cuba Relay	CUB	GMN	00119	16.54
18206.00	Moscow	RUS	JUA	50035	9.35
18225.00	Moscow	RUS	VKX	00166	11.00
18245.00	Moscow	RUS		60047	10.30
18247.00	Unid	???		10079	9.30
18250.00	Moscow	RUS	JUA	50035	9.36
18251.00	Moscow	RUS		00063	12.20

18332.00	Moscow	RUS		10042	9.14
18338.88	Moscow	RUS		00096	10.35
18345.00	Moscow	RUS			2.00
18346.88	Moscow	RUS		00096	10.30
18420.00	Unid	???	UGO	50079	11.30
18424.00	Moscow	RUS		10042	14.05
18440.00	Moscow	RUS			11.40
18575.00	Moscow	RUS			11.18
18580.00	Moscow	RUS			10.45
18585.00	Moscow	RUS	CAZ	50002	10.10
18610.00	Moscow	RUS	RPO	80038	10.35
18695.00	Moscow	RUS			9.31
18752.00	Moscow	RUS		60069	7.31
18803.00	Cuba Relay	CUB	YBU	00148	14.10
18835.00	Moscow	RUS RGA	BFR	00030	14.35
18844.00	Cuba Relay	CUB	BPA	00116	16.25
18965.00	Cuba Relay	CUB	SPK	00168	16.00
19088.00	Cuba Relay	CUB	WNY	00139	18.00
19354.00	Moscow	RUS	RPO	80038	8.14
19412.00	Moscow	RUS	CAZ	50002	10.05
19559.00	Mossad	ISR M4W	RK2		8.30
20042.00	Moscow	RUS	FQX	60003	8.50
20140.00	Cuba Relay	CUB	YBU	00148	22.00
20340.00	Moscow	RUS		10042	11.10
20412.00	Moscow	RUS			10.00
20443.00	Unid	???			8.38
20690.00	Moscow	RUS	RPO	80038	11.47
20731.00	Cuba Relay	CUB	GMN	00119	17.45
21865.00	Cuba Relay	CUB	BPA	00116	16.00

Russian Civil Railway Authority

Mode: '81-81' 40.5bd / 500 Hz

Freqs: 12184 (logged between 08.30-09.30 UTC),

14985, 16315 kHz (both logged between 07.30-08.30 UTC)

Abbreviations

SODU - Sisteme Objedinennowo Utschotja Dannych o protiwnike
[System of mutual gathering of data about the enemy]

MB - Ministertsvo Bezopasnosti (Ministry of Security)

KGB - Komitet Gosudarstvennaya Bezopasnosti [Committee of State Security]

FSB - Federalnaya Sluzhba Bezopasnosti [Federal Security Service]
(Formerly known as 'FSK' Federalnaya Sluzhba Kontrazvedky
-the Federal Counterintelligence Service-)

GRU - Glavnoye Razvedyvatel'noye Upravlenie [Military Intelligence]
SVR - Sluzhba Vneshnoi Razvedky [Foreign Intelligence Service]
FAPSI - Federalnoe Agentstvo Pravitel'stvennoy svyazi i informatsii
[Federal Agency for Government Communications and Information]
CSR - Central'naya Sluzhba Razvedky [Central Intelligence Bureau]
PSB - Prezidentskaya Sluzhba Bezopasnosti [Presidential Security Service]

Aknowledgements

Info, skeds, logs and comments were supplied by a number of dedicated and long time 'Brotherhood/SOUD' monitors and WUN members. Thank you all for your input. I couldn't have done it without your help!

Research / sources

Various articles and documents from:

- Defense Intelligence Agency, Washington
- Radio Free Europe / Radio Liberty Inc.
- Russian Reform Monitor
- OMRI Open Media Research Institute
- US Army Foreign Military Studies Office
- FAS Federation of American Scientists
- Intelligence Watch Report

Prof. Desmond Ball ('Soviet SIGINT')

Bodo Wegmann ('Russische Foederation')

Dr Marian Leighton ('From KGB to MFA')

N.Polmar & T.B.Allen ('Spy Book - the Encyclopedia of Espionage')

Russian Presidential Decree no.334

Russian Presidential Edict no.1203

-o-o-o-o-o-o-o-o-o-o-

The 'Numbers & Oddities' column a.k.a. 'Spooks Newsletter' comes to you courtesy of the Worldwide Utility News club. This newsletter may NOT be utilized, partly or wholly, in any other media format without the written permission of the editor (ary@luna.nl). Any breach of this may result in action under international copyright legislation.

To become a WUN member, send e-mail to the WUN listserver at:
majordomo@qth.net and in the BODY of the message type: "subscribe wun"
(without the quotation marks).

Check out the WUN web site at: <http://www.wunclub.com>

-o-o-o-o-conet-o-o-o-o-